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United Effort of Those Engaged in Pharmacy and the Drug Trade Activities Is Helpful, if Not Essential, for the Success of the Endeavors of Pharmacy; They Are Appraised by Others According to the Quality of Support Given to Its Projects by Pharmacists

Vol. XIX, No. 1 JANUARY, 1930

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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THE 78th ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN BALTIMORE, DURING WEEK OF MAY 5, 1930.

The 1930 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conferences of Pharmaceutical Association Secretaries and of Pharmaceutical Law Enforcement Officials will also be held at Baltimore, same time and place.

Local Secretary—Samuel Y. Harris, Lombard & Poppleton Sts., Baltimore, Md.

For Association Roster and Roster of the Boards of Pharmacy, of Officers of Pharmaceutical Associations, Local Branches, see pages x, xii, xiv, etc.

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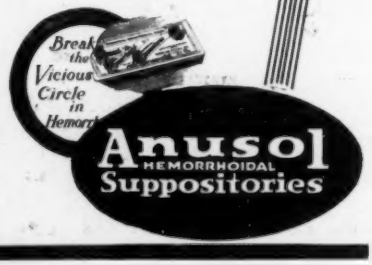

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THE SERVICE OF PHARMACY.

DISPENSING IN THE BRITISH ARMY.

RECENTLY Dr. Vernon Davies (U., Royton) asked Mr. Shaw, Secretary of War, if he was aware that this department was the only service department which employed men who were not trained pharmacists for the dispensing of medicines; and, seeing that such men could not be employed to dispense for the civil population under the National Health Insurance Act, and were not employed by the Admiralty or Air Force, whether he would look into the matter.

Mr. Shaw, in a written reply, suggested that Dr. Vernon Davies was under a misapprehension. Although some pharmacists were employed under the Admiralty on this duty, all three Service Departments employed dispensers who were not pharmacists, but who were trained as dispensers *and carried out their duties under the general supervision of medical officers.*

INSTRUCTOR TO THE BRITISH ARMY.

AN ILLUSTRATION of the good old precept, "One man can leaven an army," is about to be repeated. A certified pharmacist is required to fill the appointment of Instructor at the Army School of Dispensing, Crookham, Aldershot (England). The selected candidate will thus be able to continue the good work of his predecessor by acting as liaison officer between the unqualified and unrecognized pharmaceutical service of the British Army on the one hand, and the trained and registered pharmacists who are deemed indispensable to the civilian community on the other. One trained pharmacist instructor for the Royal Army Medical Corps is the happy position we have attained after 4½ years' war and eleven years' post-war effort. The present Government seems as intransigent as its predecessors in the matter of perpetuating inefficiency in the Service and in refusing to give any recognition to qualified pharmacy in the Army. This undeviating policy of successive Ministers is a remarkable tribute to the powers and influence of our permanent officials of the War Office's Medical Department.—*Pharmaceutical Journal and Pharmacist.*

DOCTORS AND DISPENSING.

WHETHER a medical man should be allowed not only to prescribe for a sick person, but also to make up the medicine himself, and subsequently sign the death certificate in the event of the patient dying while in his care, is the startling question asked by the writer of an article which appeared recently in the London *Daily Express.* That the question should arouse controversy is not surprising, and, judging by the columns of letters (mostly, of course, from doctors and chemists) which have since appeared, it would seem likely that action of some sort will have to be taken. It will probably occasion general surprise to learn that, with exception of some of the cantons of Switzerland, no other country in Europe allows this practice. What Mr. Marshall Freeman quite rightly points out is that, whereas the poisons in a dispensing chemist's establishment are required by law to be kept in a special cupboard, and may only be handled by the chemist himself or his qualified assistant, there is no such regulation governing the storage or dispensing of poisons in a doctor's surgery. A medical man may—and, it is alleged, does—keep poisonous drugs like arsenic and strychnine on the same shelves as other drugs; and he is under no legal obligation to employ a qualified person to dispense them. There is certainly something wanting here, and we imagine that the last has not been heard of the matter.—*Solicitors' Journal* (England), November 9, 1929.

JOHN A. J. FUNK.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XIX JANUARY, 1930 No. 1

THE PRESIDENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The President of the National Association of Boards of Pharmacy is a native of Indiana; he was born at Liberty Center, May 22, 1886. After graduating from the high school of his home town he attended Marion Normal School and, thereafter, matriculated at Purdue University School of Pharmacy, from which institution he graduated in 1906. During the latter year Mr. Funk registered as "pharmacist," by examination, and engaged with Weber Drug Company, of Indianapolis. In 1912, he became owner of Galveston (Indiana) Drug Company and holds the confidence of his patronage and regard of his fellow citizens.

Mr. Funk was appointed a member of the Indiana Board of Pharmacy in 1924 and since then has been active in advancing Indiana pharmacy; he served as its secretary for one year and, in 1926, was elected president of the Board. Ever since becoming a member of the State Board, he has taken an active interest in the National body and, in 1927, was chosen as one of the N. A. B. P. vice-presidents, and Chairman of District No. 3; last year the Association elected him its president and he will preside at the annual sessions to be held in Baltimore during the week of May 5th.

President Funk has the courage of his convictions and features the professional aspect in his store, which reflects his attitude toward pharmacy.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase St., BALTIMORE, MD.

ANOTHER YEAR FOR WORK AND PROGRESS.

THE first of a year establishes a period of adjustment of activities, a time for taking stock and laying plans for continuing and energizing work. Optimism may be followed by disappointment, but pessimism is seldom helpful in correcting unsatisfactory conditions. Pharmacy has made progress during the past few years because pharmacists are developing a higher appreciation of their profession which will be strengthened by a militant optimism.

A desire to be helpful and to coöperate has characterized pharmacists, but they often lack in appreciation of their profession and its services; the plans for higher educational standards should be strengthened by a corresponding higher valuation by the members of the profession and stronger assertion in behalf of a recognition of these efforts. Pharmacy has a large part in public health service and the public has a right to it; therefore, the people need enlightenment through coöperation of the divisions engaged in public health work and in the related activities wherein the production and application of materia medica are concerned.

The Secretary of the Interior, Dr. Ray Lyman Wilbur, stated October 22nd at the dedication of the new medical building, University of Virginia:"Modern medical knowledge is abundant, but the people as a whole are not getting full advantage of all the forces available in this field." He also said, "newspapers and the radio have informed the public that medical knowledge is not being adequately disseminated, and people are seeking relief and reaching out for means and methods which will bring it to them, regardless of residence or economic condition."

Surgeon General H. S. Cumming has said, in substance—"the only sure foundation stone for the edifice of public health is the close and sympathetic association of enlightened, intelligent medical men in private practice with trained local health organizations, coördinated and assisted by a thoroughly organized state health department provided with sufficient personnel and equipment to exercise those functions which cannot be carried on efficiently by local organizations."

"The functions of the Federal Government should properly be to carry on research through its Public Health organization in solving states in times of emergency or during the period of development of their state and local organizations. The problem may not be solved either by official or voluntary effort directed exclusively towards one group, conditions or disease, but rather by well-developed and coördinated effort against all conditions which militate against good health. Nor is the problem to be solved by any written formula applicable to the country as a whole, but largely by the interested groups in each community meeting conditions peculiar to itself as they may arise, in collaboration with state and national groups."

The public has a right to expect and investigate the coöperation of industries and professions, in order to determine whether they are giving it and those engaged

in the Governmental divisions and activities the best service and protection possible. The most potent measure for bringing about an understanding of the mission of professions is reasonable, rational discussion, with the purpose of devising means for being of service to the public, and in this service pharmacy should share and not be hampered in developing its opportunities, stimulated by motives that bespeak merit.

The fullest measure of success is possible only when all the divisions of pharmacy and the drug-trade activities are united in their common interests and are convinced that coördinated coöperation strengthens a cause and indifference hinders or makes success more difficult.

RECOGNITION OF PHARMACY IN THE GOVERNMENT SERVICES.

PHARMACY is given the status and responsibility of a profession in civil life by the laws of each state in the Union, and by numerous decisions of our courts. Its educational requirements, its literature, its ethics, its contributions to the sciences and the arts, and its services as a public health agency clearly entitle pharmacy to the status of a profession.

Unfortunately, pharmacy has not been properly recognized in the several governmental services in which the preparation and dispensing of drugs and medicines is necessary or where the special training of the pharmacist is required. It is difficult to understand why our soldiers, our sailors, our marines and our disabled veterans and their families have not been given, voluntarily, the same pharmaceutical service and the same protection in that service that each state in the Union requires by law for its citizens. The Public Health Service has maintained satisfactory requirements for members of its Pharmaceutical Corps for many years but has not given them commissioned status. Pharmacy was classified as a sub-profession in the classification set up by the Personnel Classification Board of the Civil Service about ten years ago and this is quite important, when it is recalled that pharmacists enter the several services of the Government either by enlistment in the Army or the Navy, or through the Civil Service.

It is of no consequence now to discuss why these conditions exist or to try to fix responsibility for them—whether they are deliberate or thoughtless is beside the question. It is important, however, to correct them in the interest of those who are entitled, by every consideration, to the best health service obtainable, and in the interest of the profession itself. Pharmacy cannot advance as it should as a profession so long as it is classed and treated as a sub-profession by our governmental agencies. Pharmacy cannot render a proper service so long as the best trained and best equipped pharmacists are not attracted to the Government services because of the unsatisfactory conditions under which they are asked to serve.

Four movements are under way to correct the conditions referred to:

1. A bill is now before Congress, known as the Parker Bill and bearing number H. R. 3142, which provides for the commissioning of pharmacists in the regular corps of the Public Health Service on the same basis as are medical and dental officers. This measure has the support of the Public Health Service, has

the endorsement of the national pharmaceutical associations and several state associations.

2. A bill was introduced into the Seventieth Congress to provide for a Pharmacy Corps in the Medical Department of the U. S. Army. A hearing on the bill was held by the Committee on Military Affairs of the House on February 22, 1929, and representatives of pharmacy presented a strong case which impressed the committee. The bill died with the close of Congress on March fourth.

The same bill has been introduced into the present Congress and bears the number H. B. 8473. The measure is opposed by the Surgeon General of the Army. It has the approval of every national pharmaceutical association and of practically every state association. It was endorsed by the Spanish-American War Veterans' Association at its 1929 encampment and by the American Legion at its 1929 convention.

3. A bill, H. R. 12,672, to provide for a commissioned medical service, including a medical, dental and nurse corps, in the Veterans' Bureau has been introduced into the present Congress. The physicians, dentists and nurses of this service are now on a civil service basis as are the pharmacists. A protest against the omission of a pharmacy corps has been made and representatives of pharmacy have been invited to present their case at an early hearing on the bill with the object of having provision for a pharmacy corps included, by amendment, by the Committee on World War Veterans' Legislation to which committee the bill has been referred.

4. In 1928, the ASSOCIATION filed a protest with the Personnel Classification Board against the classification of pharmacy as a sub-profession and a request that it be transferred to the professional and scientific classification. Evidence in support of the protest and of the request was filed. On October 4, 1929, a lengthy hearing was held before the Board at which time representatives of the ASSOCIATION, the National Association Boards of Pharmacy and the American Association of Colleges of Pharmacy explained fully the requirements for the education and licensing of pharmacists in civil life and the recognition which pharmacy had received as a profession. It was emphasized that the present classification was unfair not only to those in the service but to every pharmacist in the country. The members of the Board showed a great interest in the matter and an evident desire to be fair in their conclusions. A new classification will be issued at an early date and it is confidently expected that pharmacy will be given the classification requested.

These four efforts will be followed aggressively until the conditions are corrected and the pharmacists of the country will be kept advised of the progress made. A united and persistent effort will bring the results expected.

In the meantime, pharmacy has been given very encouraging recognition by a governmental bureau. In Bulletin No. 7, 1929, issued by the Bureau of Education, Department of the Interior, pharmacy schools and colleges are included in the list of accredited higher institutions of 1927–1928 with schools and colleges of other professions.—E. F. K.

SCIENTIFIC SECTION

A SIMPLE METHOD OF STUDYING RESPIRATORY PHARMACODYNAMICS.

BY DAVID I. MACHT, M.D.

INTRODUCTORY.

The study of the respiratory function, as affected by drugs, is a very complicated subject. In order to ascertain completely the effect of any given chemical substance on the respiration, the action on various functions must be studied. A drug may affect the respiration indirectly through increasing or decreasing the *metabolism*. Again, it may exert its influence upon the respiratory function through its action on the *circulation*, especially through circulatory changes in the brain or spinal cord and also through peripheral vasodilatation and consequent loss of temperature. Also it may alter the general character of breathing by changes in the *mechanical conditions* within the chest or abdomen as, for instance, by its action on various viscera or on the thoracic or abdominal musculature. It may alter the respiration by its action on the *bronchi*, producing constriction or dilatation, thus altering the so-called "dead space" within the chest cavity, etc. In order to obtain information concerning the effects described above, studies have to be made in the laboratory upon the rate of respiration, the volume of air respired or total ventilation, the alveolar or true ventilation of the lungs, the direct effect on the respiratory center, direct effect on the bronchi, etc. A detailed discussion of all these factors is given by the author in a previous publication, dealing with the action of opium alkaloids, individually and in combination with each other, on the respiration.[1]

For a great many purposes, in connection with pharmacological studies on drugs, sufficient information in regard to effects on the respiratory function can be obtained by recording tracings produced by *movements of respired air* in and from the lungs, in various ways which may be found described in textbooks, on pharmacological technique. In the present paper, the author wishes to describe briefly a simple and very efficient method of recording such tracings which give a good idea as to the rate and depth of respiration, as well as its regularity in large animals, such as rabbits, cats and dogs. In reality, two different procedures are employed in such work, one method being utilized in intact animals, either with or without general anesthesia, depending on the drugs to be studied, the other being employed where a tracheotomy is demanded with the use of ether or other volatile anesthesic.

STUDIES ON INTACT ANIMALS.

In cases where a tracheotomy is resorted to, the following method is used to advantage. Very small metallic tubes or cannulæ, such as are manufactured by the Harvard Apparatus Company, under the name of "tracheal tubes" for

[1] Macht, *J. Pharmacol. & Exper. Therap.*, 7 (1915), 339–373.

small animals and are illustrated in Fig. 1 A, are employed, the size of the cannula being adapted to the size of the animal. Such a little tube is connected by means of soft rubber tubing to a Marey tambour for recording on a kymograph, while the bevelled open end of the tube is inserted into a nostril of the animal. The procedure is a painless one and can be employed in unanesthetized animals. In order to prevent reflex sneezing, however, induced by the insertion of the tube into the nostril, the nasal canal is first completely anesthetized by swabbing with pure benzyl alcohol which has been shown by the author to be a powerful local anesthetic.[1] When a rabbit or dog has been carefully trained to lie quietly on the table, a respiratory tracing obtained in this way can be very easily taken without administration of any anesthesia and the effect of various drugs can be conveniently studied by injecting intravenously or administration in other ways.

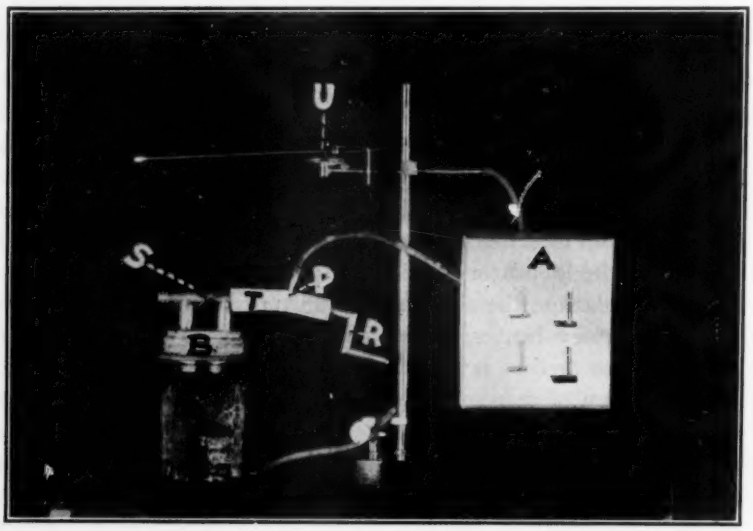

Fig. 1.—A, Small cannulae; B, Ether bottle; S, Stop-cock; T, Rubber joint; R, Tracheal tube; P, Insertion of respiratory cannula in rubber joint; U, Recording tambour.

The movements of the tambour record the rate of respiration, its depth and its rhythm, and also give a good idea as to any broncho-constrictor or broncho-dilator effect which may be produced by the administration of a pharmacological agent. Under general anesthesia with non-volatile anesthetics, such as urethane, paraldehyde, amytal, chlorbutanol, etc., such tracings through the nostrils can be obtained not only in rabbits and dogs but also in cats and, of course, in such cases, no local anesthetic is necessary.

STUDIES WITH TRACHEOTOMY.

In experiments where operative work is required and a volatile general anesthetic, such as ether, is to be employed and tracheotomy is performed, a different

[1] Macht, *J. Pharmacol. & Exper. Therap.*, 11 (1918), 263–279.

procedure must be followed, although the same small metallic tubes are still utilized. In Fig. 1 B is shown an ordinary ether bottle with a stop-cock (S) to regulate the relative volumes of air and ether inhaled. The ether bottle is connected by a piece of wide rubber tubing (T) to a regulation tracheal tube (R), which is inserted into the trachea of the completely anesthetized animal. At a point (P) in the rubber joint, connecting the large tracheal tube with the respiratory bottle, a small puncture hole is made through which the tiny metallic tube that was used for inserting into the nostril of the other animals, is inserted with its opening *toward* the animal. When the animal is breathing through the ether bottle, there is a sufficient amount of air diverted from the large tube (T) to produce oscillations of the tambour (U) and, in this way, a respiratory tracing can be obtained.

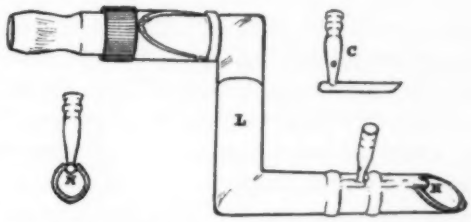

Fig. 2.—Tracheal tube with attachment for recording respiratory movements: L, Tracheal tube; C, Recording cannula; N, Front view, showing position of the aperture of the recording cannula in relation to that of the large tracheal tube.

In cases in which the excursions of the writing lever are too narrow, a still more efficient method can be employed, as illustrated in Fig. 2. Here a large tracheal tube (L) is shown, which is inserted into the trachea of the operated animal under general anesthesia. Near the proximate opening of this tube, a tiny "recording cannula" (C) has been soldered in such a way as to interfere to the least degree with the free passage of the inspired and expired air going through the ether bottle. The small recording cannula is fully sufficient, however, to give a wide excursion with the delicate Marey tambour for recording the rate and depth of the respiration, as part of the respired air moves back and forth through the small opening (N).

Fig. 3.—Respiratory tracing through nostril of rabbit, local anesthesia with benzyl alcohol. Sodium chloride, 0.9 per cent, produces no change in respiration. Pure mercurochrome, 10 mg., produces no change in respiration.

PRACTICAL ILLUSTRATION.

By the use of the methods described above, the author has obtained excellent tracings of great value in connection with studies of various drugs. In order to illustrate the results obtained, two kymographic records are produced in this place. In Fig. 3, a tracing was made of the respiratory movements of a rabbit by the use of the first method described, that is, by the insertion of a fine recording cannula in one of the nostrils previously anesthetized with benzyl alcohol. The

rabbit was lying very quietly on the table while the respiratory movements were recorded and Fig. 3 shows the results obtained by the injection of 0.5 cc. of a 2 per cent solution of pure oxymercuri-dibrom-fluorescein, or mercurochrome. This drug, as illustrated by the curve, does not influence the respiration at all and the effect is no different from that of physiological sodium chloride. Fig. 4 is a most interesting illustration of a tracing obtained in an anesthetized cat—by the second method described above. The cat was under ether anesthesia and the recording cannula was inserted close to the trachea. In this experiment, an examination was made of two fraudulent samples of a so-called antiseptic, obtained on the market. One of these was deliberately mislabeled as oxymercuri-dibrom-fluorescein, or "Mercurochrome, H. W. & D." The other bore on its label a name closely resembling that of mercurochrome. A chemical analysis

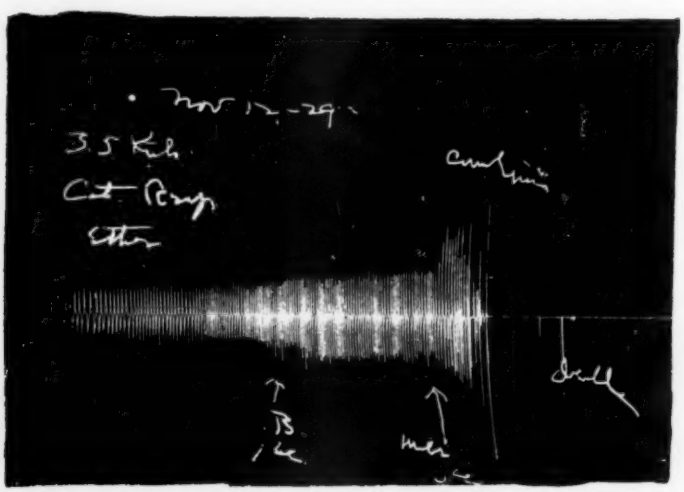

Fig. 4.—Cat, 3.5 kilo. Ether anesthesia. Respiratory tracing.

At B, 1 cc. of fake "mercurochrome" No. 1 is injected, producing distinct stimulation of the respiration. At Mer., 2 cc. of fake "mercurochrome" No. 2 are injected, producing fleeting stimulation of respiration, followed by paralysis, convulsions and death.

of these samples by the chemists in the research laboratories of this institution revealed that both of them contained no mercurochrome at all and that both were a mixture of an inert dye with a most dangerous and violent inorganic poison, *cyanide of mercury*. Specimen No. 1 contained this poison in small quantity, which was not sufficient to produce death of the rabbit with the dose administered but gave a characteristic picture of cyanide action in higher animals. The second specimen contained so much mercuric cyanide that the respiratory function was quickly paralyzed, the animal went into convulsions and died within a few minutes. The effect of the cyanides on respiration is well known to all students of pharmacology. Minute doses of the cyanide ion (CN) produce a primary stimulation of the respiration, causing deeper breathing. Larger doses of the poison produce a fleeting primary stimulation quickly followed by *paralysis* of the respiratory

center, convulsions and death. In Fig. 4, at B, 1 cc. of the weaker mercuric cyanide counterfeit for mercurochrome was injected and, it will be noted, produced a distinct and marked stimulation of the respiration, indicated by the wider excursion of the tambour. At Mer., 2 cc. of the stronger mercuric cyanide antiseptic nostrum were injected. The respiration was stimulated for a second or two and was then paralyzed; the animal went into convulsions and died within three minutes. The amount of substance required to demonstrate the characteristic effect on the respiration in these experiments was a very small one. It may be well to add that administration of a small quantity of the second preparation to a rabbit by stomach also gave a characteristic picture of cyanide poisoning, 10 cc. producing death within ten minutes. Curiously enough, while both of the fake "mercurochrome" preparations contained a dangerous poison mixed with inert dye, a bacteriological examination of both specimens, made by Mr. Eric Drake, revealed that the first specimen was not antiseptic at all while the second was only very slightly so.

THE PHARMACOLOGY OF ERGOT WITH SPECIAL REFERENCE TO BIOLOGICAL ASSAY AND STANDARDIZATION.

(The bibliography will follow the last article of the series.)

PART IV. STUDY OF AQUEOUS EXTRACTS OF ERGOT.

BY MARVIN R. THOMPSON.[1]

The most widely used preparations of Ergot may be conveniently divided into two classes, depending upon the menstruum employed in the extraction processes, as follows: (*a*) Those involving the use of an aqueous menstruum for the extraction, such as Extractum Ergotæ Aquosum, N. F. (23), (commonly known as "Ergotin" or "Ergotine"), Extractum Ergotæ, and Extractum Ergotæ Liquidum of the B. P. (40); and (*b*) those involving the use of hydroalcoholic or acid-hydroalcoholic menstrua, as exemplified by Fluidextractum Ergotæ of the U. S. P. (24). Most proprietory preparations of Ergot also fall into one or the other of these two classes (see "New and Non-official Remedies," 1928 and 1929).

The aqueous preparations only are considered in this report. A study of the preparations of the second class will be reported in another paper of this series.

PREPARATION OF AQUEOUS EXTRACTS OF ERGOT.

The pharmaceutical procedure for the manufacture of Aqueous Extract of Ergot, N. F. (23) and that for the manufacture of Extract of Ergot and Liquid Extract of Ergot, B. P. (40) are essentially the same. In each case, the drug is extracted with an aqueous menstruum, the aqueous extract is concentrated at a moderate temperature, and supposedly inert material is precipitated by the addition of alcohol and filtered. The concentration of Liquid Extract of Ergot, B. P., is adjusted so that 1 cc. represents the water-soluble physiologically active principles of 1 gram of crude ergot. In the preparation of both the B. P. and N. F. semi-solid Extract of Ergot the aqueous extract must be further concentrated to a semi-solid or pilular consistence. Neither the N. F. nor the B. P. require the preparations to be standardized in any way.

The N. F. and B. P. differ slightly as to the aqueous menstruum employed in their preparations. The N. F. specifies chloroform water while the B. P. specifies water as the extraction men-

[1] Assistant Pharmacologist, Pharmacological Laboratory, Food, Drug and Insecticide Administration, U. S. Department of Agriculture, Washington, D. C.

struum. The small amount of chloroform in the menstruum of the N. F. preparation is not sufficient to alter the solvent properties of the water, but is intended to inhibit fermentation or putrefaction during the extraction process. Theoretically, then, both processes should yield similar products with respect to nature and amount of activity, as the small amount of chloroform present in the N. F. menstruum is expelled by evaporation during the concentration of the extract.

Although these aqueous Extracts of Ergot have received considerable attention in the literature, most of the studies reported have been incomplete. The pharmaco-dynamically active constituents of ergot have been discussed (37). Briefly, they consist of a series of specific alkaloids, of which ergotoxine and ergotamine are the most important; and a series of non-specific amines, such as histamine, tyramine and cholines. Several investigators (16 13, 19,) have found that aqueous extracts of ergot owe their pharmaco-dynamic activity to the non-specific amines of the drug and that preparations of this type are practically devoid of the specific alkaloids. Since, in the light of present-day opinion, the alkaloids are the specific and desirable active constituents of ergot from the clinical standpoint (1, 19, 28, 34), it might be concluded that Extracts of Ergot prepared by extraction with water are valueless with respect to ergot therapy.

A study of these aqueous Extracts of Ergot was undertaken for the purpose of determining the nature of their activity and the factors which influence the activity of ergot preparations of this type. The experimental studies embraced aqueous extracts of ergot of the following types, the numbers corresponding to those in Table II:

(*1*) Extractum Ergotæ, B. P. Method:
  (*a*) Allowed to ferment during aqueous extraction.
  (*b*) Not permitted to ferment during aqueous extraction.

(*2*) Extractum Ergotæ Liquidum, B. P. Method:
  (*a*) Allowed to ferment during aqueous extraction.
  (*b*) Not permitted to ferment during aqueous extraction.

(*3*) Extractum Ergotæ Aquosum, N. F. Method:
  (*a*) N. F. method in detail; evaporated to *pilular* consistence.
  (*b*) N. F. method, except that the concentration was adjusted by evaporation to a point such that 1 cc. of the chloroform-water alcohol-precipitated extract represented 1 gram of crude ergot.
  (*c*) Same as 3 (*b*), except that the ground drug was de-fatted with petroleum benzine before proceeding with the chloroform water extraction.

(*4*) *Alkaline Aqueous Extract of Ergot, Special:*

Prepared by de-fatting with petroleum benzine and exhausting the drug by percolation with a 3 per cent solution of sodium bicarbonate in water at a temperature below 10° C. to prevent fermentation. Twenty per cent of alcohol was added to the finished product.

(*5*) *Acid Aqueous Extract of Ergot, Special:*

Prepared as No. 4, except that the extraction menstruum consisted of 0.2 per cent hydrochloric acid U. S. P. in water. Twenty per cent alcohol was added to the finished product to prevent fermentation.

Up to the present time, available chemical methods have not proven satisfactory in accurately determining the nature of ergot preparations. Several biological methods have been found to yield reasonably accurate qualitative and quantitative information on the activity of the various constituents of ergot. Hence, the following biological methods were used in this study:

(*a*) *Cock's Comb Method*, official in the U. S. P. X, for the assay of Fluidextract of Ergot. The method as employed has been described in detail by Edmunds and Hale (30), by Gittinger and Munch (15), and by Pattee and Nelson (28). It is reputed to measure the alkaloidal activity of the ergot preparation. Sollmann (14) states that the amines may influence results by this method, although others (28, 34) have found it to yield results comparable to those obtained by the Broom-Clark Isolated Rabbit Uterus Method for the estimation of the alkaloidal content of Ergot preparations. The cockerels used met the specifications of the U. S. P. They were those used in the routine assay of ergot preparations in the Pharmaco-

logical Laboratory. Their individual reactions to the U. S. P. Standard Fluidextract of Ergot were determined every three months to correct for individual changes in susceptibility and tolerance from time to time, as recommended by Gittinger and Munch (15) and Pattee and Nelson (28). Two groups of birds were employed. Those in one group, designated "old cockerels" in the tables, had been standardized and used every two weeks for 6 months or more in testing ergot preparations. Those in the other group, designated "new cockerels" in the tables, were new birds that had never undergone ergot testing, aside from two or three injections of Standard Ergot at 2-week intervals for the purpose of establishing their threshold reactions (15). The two groups were used to determine whether or not continued usage played any part in the pharmacodynamic response of the birds to various active constituents of ergot.

(*b*) *Histamine-Ergot Alkaloid Inhibition Method*, involving the use of the isolated guinea-pig uterus. This method, described in a preceding article (39) serves to measure the alkaloidal activity of the preparation by the ability of definite concentrations of ergot alkaloids to inhibit the response of the guinea-pig uterus to constant doses of histamine.

(*c*) *Broom-Clark Isolated Rabbit Uterus Method.*—The details of this method are described by Pattee and Nelson (28) and are similar to those described by Broom and Clark (13) except that the modification proposed by Pattee and Nelson, and found by the authors to obviate possible amine interference, was used. The modified method was used because aqueous Extracts of Ergot were found to contain a higher proportion of amines to alkaloids than alcoholic extracts. This method is reputed to measure the alkaloidal activity of the ergot preparations (13, 28, 19, 31, 33, 34) irrespective of the amine content.

(*d*) *Isolated Guinea-Pig Uterus Method* for the determination of the amine activity of ergot preparations. This method, already described in detail (38) provides for the estimation of the resultant amine activity expressed in terms of histamine. Alkaloidal interference is obviated by observing the details described. All of the amines identified with ergot stimulate the described tissue to contraction. Therefore, the method serves to estimate the resultant effect of all of the amines present, but does not serve to differentiate between or indicate which of the amines are present and responsible for the observed uterine activity. Parallel pressor studies on cats or dogs are of great assistance in determining which of the two most important amines (histamine and tyramine) predominates in mixtures, as both exhibit decidedly differing activity upon the blood pressure of the usual test animals. Nelson and Pattee (1) state that although no positive statement is available as to which of these amines predominate, it is generally agreed that most of the amine activity may be ascribed to histamine. The results of these studies tend to confirm this statement.

(*e*) *Pressor Method to Anesthetized Dogs.*—The usual technique was followed in carrying out this method. Male or female dogs weighing approximately 10 kilograms were anesthetized by the intraperitoneal injection of 125 to 150 milligrams per kilogram of sodium luminal. Both vagi were severed and artificial respiration was administered. The blood pressure was recorded from the carotid artery and the drug preparations were introduced by way of the canulized femoral vein in the usual manner. This method has been applied qualitatively only, because it was practically impossible to obtain accurate quantitative information owing to susceptibility variations in dogs and the difference in the pressor activity of the various amines and alkaloids of ergot. The blood pressure studies are therefore considered apart from those involving other methods.

CRUDE DRUG SAMPLES USED IN PREPARATION OF EXTRACTS.

A rather large number of samples of crude ergot of several varieties have been used in this work. The experimental results obtained on ten of these samples are included in Tables I and II. It is believed that these results are typical for the

TABLE I.—CRUDE DRUG SAMPLES OBTAINED FROM IMPORTED ERGOT.

Crude drug no.	Commercial source.	U. S. P. X POTENCY* OF CRUDE DRUG. Old cockerels. *Per cent.*	U. S. P. X POTENCY* OF CRUDE DRUG. New cockerels. *Per cent.*	TOTAL ALKALOIDS OF CRUDE DRUG, CALCULATED AS ERGOTAMINE BASE. Broom-Clark Isolated Rabbit Uterus Method (28). *Per cent.*	Isolated Guinea-Pig Uterus Method for alkaloids (39). *Per cent.*	Total amines of crude drug, calculated as histamine, by Isolated Guinea-Pig Uterus Method for amines (38). *Per cent.*
1	Russian	130–150	160–170	0.05	0.04	0.035
2	Polish	175–200	175–200	0.067	0.06	0.015
3	Russian	25–80	100	0.036	0.03	0.045
4	Russian	200–225	200–225	0.075	0.07	0.033
5	Spanish	300–450	500	0.150	0.15	0.052
6	Spanish	400–450	400–450	0.133	0.12	0.027
7	Portuguese	250–275	250–275	0.080	0.08	0.012
8	Portuguese	150–250	350–400	0.120	0.11	0.087
9	Spanish	100–350	200–300	0.125	0.12	0.125
10	Spanish	100–350	200–300	0.133	0.13	0.150

* Potency in terms of U. S. P. Standard Fluidextract of Ergot.

general run of crude ergot imported into the United States. Several samples have been found to be practically devoid of amine activity by pressor and uterine methods (38), but significant amounts of the alkaloids were invariably present. Most of the samples examined contained appreciable amounts of amines, regardless of alkaloidal content, variety or origin. A few investigators in this country have recently contended that a high amine content in crude ergot results from deterioration and decomposition of the specific alkaloids of the drug during storage. It has been conclusively shown in these studies that the amine activity is entirely independent of the alkaloidal content. Samples unusually high in alkaloids are frequently correspondingly high in the non-specific amines, although the results in Tables I and II clearly show that the amine activity is entirely independent of the alkaloidal content. Furthermore, aqueous preparations permitted to undergo fermentation or putrefaction (Table II) show a pronounced increase in amine content and at the same time a slight increase in alkaloidal activity. The increase in the alkaloidal content is undoubtedly due to acid formation during the fermentation which increases the efficiency of the water as an extraction menstruum. The increased amine activity is due to fermentation or putrefaction of substances in the ergot other than the active alkaloids. The amine and alkaloidal changes which take place in crude ergot under varying conditions of storage will be considered in a succeeding article.

RESULTS OBTAINED.

Typical results obtained during these studies are incorporated in Tables I and II. To tabulate the data on all samples studied would unduly extend the length of this report. The ten samples of crude ergot included in Table I were obtained from importations. It will be noted that these samples are not intended especially to typify the general run of importations of the various varieties of ergot regarding activity, but merely to show the amine and alkaloidal activity of the crude drugs entering into the preparation and study of the Aqueous Extracts embraced in Table II.

The "Crude Drug No." in Table I corresponds to the number under the same heading in Table II.

TABLE II.—PHARMACO-DYNAMIC ACTIVITY OF AQUEOUS EXTRACTS PREPARED FROM CRUDE ERGOTS OF TABLE I.*

Crude drug no.	Aqueous preparation.	Potency by Cock's Comb Method (24, 15). U. S. P. Potency for Fluidextract.** Old cockerels. *Per cent.*	New cockerels. *Per cent.*	Total Alkaloids, Calculated as Ergotamine** Base. Broom-Clark Method (28). *Per cent.*	Isolated Guinea-Pig Uterus Method for alkaloids (39). *Per cent.*	Total Amines, Calculated as Histamine.** Isolated Guinea-Pig Uterus Method for amines (38). *Per cent.*
I	(*1*) Extractum Ergotæ (Pilular) B. P. Method:					
	(*a*) Allowed to ferment	33	10	0.005	††	0.045
	(*b*) Not allowed to ferment	20†	20†	0.003	††	0.025
	(*2*) Extractum Ergotæ Liquidum, B. P. Method:					
	(*a*) Allowed to ferment	20†	25	0.008	††	0.050
	(*b*) Not allowed to ferment	20	20	0.006	††	0.030
	(*3*) Extractum Ergotæ Aquosum, N. F.:					
	(*a*) N. F. Method—evaporated to pilular consistence	20†	20†	0.005	††	0.025
	(*b*) N. F. Method—not evaporated	20†	20	.006	††	0.030
	(*c*) Same as (*b*), except drug de-fatted with petroleum benzine before extraction	20†	20	0.006	††	0.035
	(*4*) Alkaline Aqueous Extract of Ergot (3% sodium bicarbonate menstruum—de-fatted before extraction, 20% alcohol added to finished product):					
	Not allowed to ferment	20	20†	0.002†	††	0.035
	(*5*) Acid Aqueous Extract of Ergot (same as No. 4 except 0.2% hydrochloric acid U. S. P. in water used as menstruum, 20% alcohol added as in No. 4):					
	Not allowed to ferment	50	70–80	0.025	0.02	0.030
II	(*1*):					
	(*a*)	20	20†	0.004	††	0.030
	(*b*)	20†	20†	0.003†	††	0.009
	(*2*):					
	(*a*)	20†	20	0.006	††	0.040
	(*b*)	20†	20†	0.004	††	0.015
	(*3*):					
	(*a*)	20†	20†	0.003	††	0.008
	(*b*)	20†	20	0.006	††	0.010
	(*c*)	20	20	0.008	††	0.015
	(*4*):	20†	20†	0.002†	††	0.015
	(*5*):	100–120	100–120	0.042	0.04	0.013

TABLE II.—(*Continued*).

Crude drug no.	Aqueous preparation.	Potency by Cock's Comb Method (24, 15). U. S. P. Potency for Fluidextract.** Old cockerels. *Per cent.*	Potency by Cock's Comb Method (24, 15). U. S. P. Potency for Fluidextract.** New cockerels. *Per cent.*	Total Alkaloids, Calculated as Ergotamine** Base. Broom-Clark Method (28). *Per cent.*	Total Alkaloids, Calculated as Ergotamine** Base. Isolated Guinea-Pig Uterus Method for alkaloids (39). *Per cent.*	Total Amines, Calculated as Histamine.** Isolated Guinea-Pig Uterus Method for amines (38). *Per cent.*
III (*1*):						
(*a*)		30–40	20†	0.005	††	0.063
(*b*)		20	10	0.003	††	0.037
(*2*):						
(*a*)		40–50	25	0.007	††	0.072
(*b*)		20†	20†	0.003	††	0.045
(*3*):						
(*a*)		20	20†	0.004	††	0.037
(*b*)		10†	20†	0.005	††	0.040
(*c*)		20†	20†	0.007	††	0.045
(*4*):		20–30	20†	0.002†	††	0.045
(*5*):		40–50	70–80	0.027	0.02	0.042
IV (*1*):						
(*a*)		30–40	10–20	0.006	††	0.050
(*b*)		10–20	20†	0.004	††	0.027
(*2*):						
(*a*)		20–30	20†	0.008	††	0.068
(*b*)		20†	20†	0.005	††	0.032
(*3*):						
(*a*)		20†	20†	0.003	††	0.027
(*b*)		20	20†	0.004	††	0.035
(*c*)		20†	20†	0.005	††	0.033
(*4*):		20	20†	0.002†	††	0.033
(*5*):		100	120	0.047	0.04	0.030
V (*1*):						
(*a*)		30–50	20	0.006	††	0.087
(*b*)		20†	20†	0.003	††	0.042
(*2*):						
(*a*)		20†	25	0.010	††	0.100
(*b*)		20†	20†	0.005	††	0.052
(*3*):						
(*a*)		20	20†	0.003	††	0.037
(*b*)		20†	20†	0.006	††	0.050
(*c*)		20†	20†	0.006	††	0.050
(*4*):		25	20†	0.002†	††	0.052
(*5*):		100	160–170	0.066	0.06	0.050
VI (*1*):						
(*a*)		20†	20†	0.007	††	0.052
(*b*)		20†	20†	0.003	††	0.022
(*2*):						
(*a*)		20†	25	0.010	††	0.065
(*b*)		20†	20†	0.006	††	0.025
(*3*):						
(*a*)		20†	20†	0.002	††	0.020
(*b*)		20†	20†	0.004	††	0.026
(*c*)		20†	20†	0.004	††	0.027
(*4*):		20†	20†	0.002†	††	0.027
(*5*):		200	200	0.062	0.06	0.027

TABLE II.—(*Concluded*).

Crude drug no.	Aqueous preparation.	Potency by Cock's Comb Method (24, 15). U. S. P. Potency for Fluidextract.** Old cockerels. *Per cent.*	Potency by Cock's Comb Method (24, 15). U. S. P. Potency for Fluidextract.** New cockerels. *Per cent.*	Total Alkaloids Calculated as Ergotamine** Base. Broom-Clark Method (28). *Per cent.*	Total Alkaloids Calculated as Ergotamine** Base. Isolated Guinea-Pig Uterus Method for alkaloids (39). *Per cent.*	Total Amines, Calculated as Histamine.** Isolated Guinea-Pig Uterus Method for amines (38). *Per cent.*
VII (*1*)						
	(*a*)	20†	20†	0.008	††	0.047
	(*b*)	20†	20†	0.002	††	0.009
(*2*):						
	(*a*)	20†	20	0.015	††	0.075
	(*b*)	20†	20†	0.004	††	0.010
(*3*):						
	(*a*)	20†	20†	0.003	††	0.007
	(*b*)	20†	20†	0.004	††	0.011
	(*c*)	20	20	0.006	††	0.012
(*4*):		20†	20†	0.002†	††	0.012
(*5*):		100	120	0.040	0.04	0.012
VIII (*1*):						
	(*a*)	25	40	0.012	††	0.155
	(*b*)	25	20	0.005	††	0.072
(*2*):						
	(*a*)	25	50	0.015	††	0.167
	(*b*)	30–40	20†	0.006	††	0.079
(*3*):						
	(*a*)	20	20†	0.005	††	0.068
	(*b*)	30–40	25	0.006	††	0.082
	(*c*)	25	30–40	0.008	††	0.084
(*4*):		50	20†	0.002†	††	0.087
(*5*):		100–150	175–200	0.067	0.06	0.085
IX (*1*):						
	(*a*)	60–80	30–40	0.006	††	0.175
	(*b*)	30–50	20	0.004	††	0.115
(*2*):						
	(*a*)	60–80	20–40	0.008	††	0.189
	(*b*)	30–40	30–50	0.006	††	0.125
(*3*):						
	(*a*)	30–40	20	0.005	††	0.118
	(*b*)	30–50	30–50	0.005	††	0.123
	(*c*)	20	25	0.006	††	0.123
(*4*):		60–70	30–40	0.002†	††	0.125
(*5*):		100	160–175	0.067	0.06	0.125
X (*1*):						
	(*a*)	60–80	50	0.006	††	0.175
	(*b*)	50–60	20–40	0.003	††	0.133
(*2*):						
	(*a*)	70–80	50–70	0.008	††	0.183
	(*b*)	50–60	30–40	0.005	††	0.147
(*3*):						
	(*a*)	50–60	30–40	0.002	††	0.130
	(*b*)	50–60	50	0.004	††	0.127
	(*c*)	20–60	50–60	0.005	††	0.150
(*4*):		50–75	20–30	0.002†	††	0.150
(*5*):		80–150	200	0.083	0.08	0.150

* Concentration of all preparations adjusted so that 1 cc. represents 1 gram of crude Ergot. Pilular extracts were redissolved in water in a concentration such that 1 cc. of solution represents 1 gram crude Ergot. Expressions of activity or constituent content therefore represent the amounts that were derived from the crude drug by the methods of preparation described.

** Standards Involved in Tables I and II:

(*a*) For total alkaloids—Ergotamine Tartrate (Sandoz Chemical Co.) corresponding to 84.5% Ergotamine base.

(*b*) For total amines—Histamine (Pfanstiehl Chemical Co.)

(*c*) Cock's Comb Potency. Compared with the U. S. P. X Standard Fluidextract of Ergot prepared and distributed to pharmaceutical manufacturers and scientific investigators by this laboratory, equivalent to 0.03 per cent Ergotamine base.

† Less than.

†† No results.

The geographical origin or variety of the Ergot of Rye is given in the second column under "Commercial Source." (Table I.)

The U. S. P. X Cock's Comb potency (Table I) was determined by the U. S. P. X method of preparing a fluidextract in the prescribed manner and determining the potency by the Cock's Comb Method. "Old cockerels" are birds that had been standardized and used for ergot testing every two weeks for six months or more, but still within U. S. P. specifications for weight. "New cockerels" are new birds that had not been used except for the few injections at 2-week intervals necessary for standardization. Expressions of potency are based on a comparison of the fluidextract yielded by the crude drug sample with the U. S. P. Standard Fluidextract of Ergot prepared by the Pharmacological Laboratory. The Cock's Comb potency of the aqueous extracts (Table II) is also expressed in terms of the Standard Fluidextract. The value of the Standard Fluidextract in terms of ergotamine will be shown in a later report. Total alkaloids of crude drug, calculated as ergotamine base, by the Broom-Clark Method, modified (28) and by the Isolated Guinea-Pig Uterus Method for Alkaloids (39) were determined on the fluidextract of the crude drug (Table I) and on the aqueous extracts (Table II). Total amines, calculated as histamine (Table I) were determined by the Isolated Guinea-Pig Uterus Method for Amines of Crude Ergot (38). The amine content of the aqueous extracts in Table II were obtained by the direct application of the method for aqueous extracts (38).

The results in Tables I and II are obtained from concentrations such that 1 cc. of preparation represents 1 gram of crude ergot. The semi-solid or pilular extracts were adjusted to the same concentration, that is, the pilular extract obtained from 100 grams of crude ergot was redissolved in enough water to make 100 cc. of preparation.

A brief explanation of the fermented and non-fermented aqueous preparation (Table II) is given earlier in this article. If chloroform water is used as the menstruum, as in the N. F. method of preparation, no fermentation takes place during the process of extraction. When pure water is used, and extraction is carried out at ordinary room temperature, fermentation and putrefaction rapidly take place. If the extraction is carried on at a low temperature (5° C. to 10° C.), the fermentation and putrefaction are prevented. Several preparations of each type are found in Table II. The finished liquid extracts undergo further fermentation or putrefaction unless at least 15 per cent of alcohol is added or the preparation is stored in a

refrigerator. This procedure was observed in these studies, as it was found that the further the enzyme action progressed the greater the amine content became. Even in the preparations "allowed to ferment," the fermentation was permitted only during the extraction process.

It was found to be almost impossible to exhaust the drug of amine activity as long as the fermentation was allowed to continue, because in some cases active amines were formed nearly as rapidly as they were removed by the slow percolation (15 to 20 drops per minute). If the fermentation is prevented, there is little difficulty in exhausting the drug of amines. Exhaustion of the drug was tested by the Isolated Guinea-Pig Uterus Method for Amines of Ergot (38).

CAROTID BLOOD PRESSURE STUDIES OF AQUEOUS EXTRACTS OF ERGOT ON ANESTHETIZED DOGS.

The effects of the various constituents of ergot upon the blood pressure of experimental animals are given in several of the available texts on pharmacology (26, 14). Briefly, the pressor reactions of the most important active constituents on anesthetized dogs, by intravenous administration, are as follows:

(1) Alkaloids:

(*a*) Ergotamine produces a rather persistent rise in blood pressure in doses of 0.02 to 0.1 milligram per kilogram of dog (Plate VIII). Diminishing response results from repeated dosage.

(*b*) Ergotoxine has the same reactions as ergotamine.

(2) Amines:

(*a*) Histamine produces a sudden but rather transitory fall in blood pressure in doses as low as 0.01 milligram per kilogram of dog. Larger doses cause proportionately greater effects in persistence and magnitude. A dose of 0.05 milligram per kilogram of dog produces a very sudden and pronounced fall in blood pressure (Plate IX).

(*b*) Tyramine produces a somewhat transitory rise in blood pressure, similar to, but a bit more persistent than that caused by epinephrine. It is less than one-tenth as active on blood pressure as histamine or epinephrine. The rise in blood pressure from tyramine is not nearly as persistent as from the ergot alkaloids.

All of the aqueous extracts listed in Table II produced an effect upon the blood pressure of anesthetized dogs similar to that shown in Plate X, which gives the results of a fermented extract. The various aqueous extracts differed only in potency. The potency observed by this method was closely parallel to that determined by the Isolated Guinea-Pig Uterus Method for Amines (Table II). The resultant activity apparently was due almost entirely to the amines, the most predominant of which was histamine, as a sudden fall in blood pressure similar to that produced by histamine was invariably produced, masking any rise in blood pressure that could result from the small amounts of alkaloids or tyramine that may have been present.

Plate XI shows how histamine masks the effect of ergot alkaloids, the two substances being antagonistic in their apparent individual effects upon blood pressure.

The amine potency by the blood pressure method was found to increase the more the preparation was permitted to ferment, as was also observed by the Guinea-Pig Uterus Method for Amines (Table II).

Plate 8.—Showing the persistent rise in blood pressure produced by the intravenous administration of 0.25 mg. of Ergotamine Tartrate. Dog weighed 10.7 Kg.

Plate 9.—The sudden and pronounced fall in blood pressure produced by the intravenous administration of 0.5 mg. of Histamine to dog weighing 11.2 Kg.

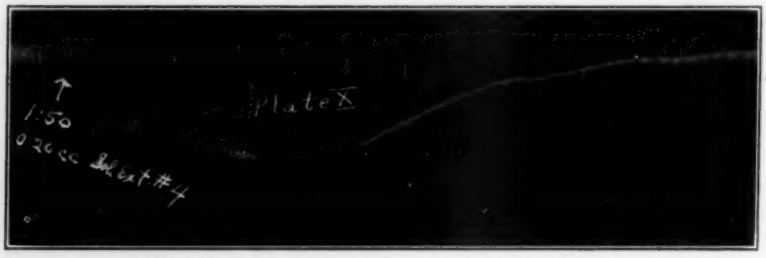

Plate 10.—The effect produced by the intravenous administration of 0.2 cc. of solution of an Aqueous Extract of Ergot (fermented) (1.0 cc. representing 1.0 Gm. Ergot). Note the similarity of this fall in blood pressure and that shown in Plate IX. Dog weighed 9.7 Kg.

Plate 11.—The effect produced by a dose of 0.25 mg. each of Histamine and Ergotamine Tartrate in mixture injected intravenously. Dog weighed 9.7 Kg.

DISCUSSION OF RESULTS.

Tables I and II and plates are practically self-explanatory. It is clearly evident that methods of preparation involving the use of water or alkalinized water as the extraction menstruum (Table II) yield extracts which may be high in amine activity but which are practically devoid of specific ergot alkaloids.

The amine content of crude ergot varies enormously. Some samples were practically devoid of amines but most of them contained very appreciable amounts. This amine activity apparently is entirely independent of the alkaloidal content in crude ergot. The aqueous preparations not permitted to ferment usually contained all of the amines (histamine, tyramine, etc.) present in the parent drug, but only insignificant amounts of the alkaloids. The aqueous preparations permitted to ferment had a much higher amine activity than the parent drug. The longer the aqueous preparations ferment the higher the amine content becomes. This fermentation or putrefaction is evidenced by the evolution of gas and the development of putrid odors. It results in the formation of acid, which slightly increases the efficiency of water as a solvent for the specific ergot alkaloids.

The direct addition of acid to the aqueous menstruum increases the efficiency of water in extracting the alkaloids. The amines are also completely soluble in acid menstruum. Mildly alkaline aqueous menstrua extract the amines, but exclude the alkaloids from the resulting preparations.

The Isolated Guinea-Pig Uterus Method for detecting and estimating the non-specific amine activity of ergot preparations (38) gives results closely paralleling those obtained by pressor studies and is reasonably accurate in estimating the amine activity of aqueous axtracts.

Blood pressure studies indicate that histamine is the most important of the constituents found in aqueous extracts of Ergot, so far as activity and occurrence are concerned, although it is highly probable that tyramine, cholines, etc., may also be present. The greater activity of histamine by uterine and pressor methods makes detection of smaller amounts of other principles impossible by these methods. Histamine is synergistic with tyramine and acetyl choline in its action on the isolated guinea-pig uterus, but is antagonistic to tyramine and the alkaloids on the carotid blood pressure of anesthetized dogs.

The Isolated Guinea-Pig Uterus Method for Ergot Alkaloids was not sufficiently sensitive to measure the small amount of alkaloids found in these aqueous preparations of relatively high amine activity. The Acid Aqueous Extracts (No. 5 in Table II) alone contained a measurable quantity of alkaloids.

The results obtained by the Cock's Comb Method upon the aqueous extracts are interesting and decidedly contrary to those expected, as this method is generally held to be capable of measuring only the alkaloidal activity of ergot preparations. The values in Table II indicate that aqueous preparations may show appreciable activity by this method, even though practically no alkaloids are present. The aqueous preparations with the exception of the "Acid Aqueous Extracts," showing greatest activity on the Cock's Comb are high in amine activity only, suggesting that certain of the amines are present in sufficient amounts to cause the bluing of the comb. The old cockerels reacted to the amines to a greater degree than the new cockerels, although the results obtained were not consistent. The acid or fermented

aqueous extracts which contained higher proportions of akaloids frequently gave lower results than those containing practically no alkaloids. The results in Table II conclusively show that the Cock's Comb Method is not reliable for testing *aqueous extracts*. A more thorough study of the effects of the various constituents, individually and in mixtures, upon White Leghorn cockerels will receive consideration in the next article of this series. The discordant results obtained by this method in the assay of the crude drugs (as the fluidextract) upon the old cockerels and new cockerels will also be considered more thoroughly. Table I was included in this article merely to show that the crude drug samples involved were active.

The Broom-Clark Isolated Rabbit Uterus Method, using the washing technique described by Pattee and Nelson (28) yielded consistent results in measuring even the small amounts of ergot alkaloids in aqueous extracts of ergot. The washing of the uterine strips before observing the final epinephrine response can be made to effectually obviate amine interference, although several washings were occasionally necessary.

The amines of ergot apparently are completely extracted by either mildly alkaline or acid aqueous menstrua, but the alkaloids were not extracted in significant amounts by water, chloroform water, or mildly alkalinized water. Mildly acidified water or strong solution of the alkali hydroxides extracts higher proportions of the alkaloids. Concentrating the aqueous extracts and precipitating with alcohol detracts but little from the amine or alkaloidal activity of the extracts, as both amines and alkaloids are soluble and not precipitated or removed by the treatment with alcohol and the subsequent filtration. Further concentration at a moderate temperature to a semi-solid or pilular consistence results in a loss in both amine and alkaloidal potency, although the loss is not great, usually less than 30 per cent, although even this deterioration practically prevents the appearance of active alkaloids in the soft extract.

Permitting the drug to ferment during extraction with the aqueous menstrua results in marked increase in the amine activity, and a slight increase in aklaloidal content owing to acid formation which increases the solubility of the alkaloids. The use of chloroform water, U. S. P., prevents this fermentation, as does the preparation of the extract in a cold room. The natural acidity of the drug provides for a very slight extraction of ergot alkaloids by water if this acidity is not neutralized by the addition of alkalies.

If, as is quite generally believed, the alkaloids are the principles of ergot which are responsible for the desirable clinical activity of its preparations, the processes specified by the N. F. and B. P. for the preparation of Extractum Ergotæ Aquosum and Extract of Ergot or Liquid Extract of Ergot appear to be decidedly faulty with respect to the menstruum employed.

Furthermore, if the amines, such as histamine and tyramine, are the desirable constituents of ergot, which is highly improbable, as they are practically inactive on the uterus when administered orally (14), there would be no reason for retaining ergot in the Pharmacopœia, since these substances can be obtained much more cheaply and in a purer state from other sources. This supposition, however, has been quite definitely disproven by the numerous investigations of recent years. There is abundant evidence, published and unpublished, definitely establishing the clinical value of ergot and the fact that this value is due to the specific alkaloids

contained therein. Since this investigation has shown that B. P. and N. F. Aqueous Extracts of Ergot prepared by the processes specified do not contain significant amounts of the ergot alkaloids, it is believed that these preparations are practically without value with respect to ergot therapy. The appearance of these aqueous extracts on the market has provided for their use by clinicians and physicians, usually with little or no success, resulting in a subsequent undue condemnation of all types of ergot preparations and a search for a suitable substitute.

(*To be continued*)

HAZINESS OF FINAL CHLOROFORMIC EXTRACTIONS IN ALKALOIDAL ASSAYING.*

BY GEORGE E. ÉWE.

In estimating alkaloids, as a rule, the alkaloids are eventually segregated in an ammoniacal, aqueous liquid containing large quantities of ammonium sulphate. The alkaloids are then "shaken out" with an immiscible solvent, chloroform usually being the choice. These chloroformic extractions, instead of being brightly clear, are often hazy. This haziness, when not due to the presence of solid matter, is due to an almost colloidal suspension of a trace of the aqueous liquid from which the alkaloids were extracted. Since this aqueous liquid contains ammonium sulphate, and since, under the influence of heat and moisture, alkaloids tend to liberate ammonia from ammonium sulphate (and are thereby proportionately neutralized by the sulphate radicle), it seems important to ascertain the possible effect of this latter type of haziness of final chloroformic extractions upon the results of alkaloidal assays.

The following experiments illustrate the effect of alkaloid upon ammonium sulphate under several varied conditions: When a grain or two each of strychnine alkaloid and ammonium sulphate are placed in a 100-cc. volumetric flask along with about 15 cc. of water, or water-saturated chloroform, and a piece of moistened red litmus paper is placed between pledgets of cotton in the neck of the flask and the mixture then boiled, the litmus paper turns blue, due to liberation of ammonia from the ammonium sulphate by the alkaloid. When the alkaloid and ammonium sulphate are dried by heat and the chloroform is essentially deprived of moisture by boiling down to half its volume, and the above test is repeated, a very doubtful alkaline reaction is obtained, if any. No reaction is obtained in this test from mixtures of ammonium sulphate and water-saturated chloroform, or strychnine alkaloid and water-saturated chloroform, or dried ammonium sulphate and dried chloroform or dried alkaloid and dried chloroform.

To ascertain if haziness of the final chloroformic extracts has any influence upon results of alkaloidal assays, the final chloroformic extracts, from alkaloidal assays which happened to be hazy, were brought to a definite volume and divided into three equal aliquots. One aliquot was evaporated to 5 cc. excess tenth-normal sulphuric acid added, the chloroform boiled off completely and the excess of acid titrated back with fiftieth-normal sodium hydroxide, using methyl red as indicator. The second aliquot was either washed with 10 cc. of water in a separator

* Scientific Section, A. PH. A., Rapid City meeting, 1929.

(the wash water being extracted with three 10-cc. portions of fresh chloroform and the chloroformic washings then combined with the main bulk of alkaloidal solution), or the aliquot was clarified by shaking it with a pinch of powdered tragacanth and filtering; the wash or clarified chloroformic extractions then being evaporated to 5 cc., excess standard acid added and so on. The third aliquot was evaporated to 10 cc., a 10-cc. portion of water added, the chloroform boiled off, a drop of hydrochloric acid added, the mixture cooled, filtered and treated with 2 drops of barium chloride test solution as a test for ammonium sulphate. The following are:

TYPICAL RESULTS ON VARIOUS HAZY, FINAL CHLOROFORMIC EXTRACTIONS.

Drug Product.	Degree of Haziness.	Sulphate Test.	Difference in $N/50$ Alkali on Titration.
Fluidextract Belladonna leaves	Slight	Distinct opalescence	None within a drop or two.
Powdered Hyoscyamus	Quite hazy	Distinct opalescence	Washed aliquot showed less alkaloid to extent of 0.05 cc.
Powdered Extract Nux Vomica	Very hazy	Immediate turbidity	Aliquot clarified by tragacanth showed more alkaloid to extent of 0.1 cc.
Powdered Nux Vomica	Almost turbid	Strong turbidity	Washed aliquot showed less alkaloid to extent of 0.05 cc.
Ground Belladonna leaves	Very hazy	Immediate turbidity	Washed aliquot showed more alkaloid to extent of 0.05 cc.
Ground Hyoscyamus	Very hazy	Immediate turbidity	No difference (Tragacanth used)

These results would seem to indicate that the influence of the ammonium sulphate present in hazy final chloroformic extracts obtained in alkaloidal assays is negligible. Possibly the free ammonia, with which these extractions are saturated, tends to prevent the action of the alkaloid upon the ammonium sulphate, until boiling has rendered the mixture substantially free from water, in the absence of which the action is hindered or becomes negligible. That this is possible appears to be shown by the following experiments: When U. S. P. Chloroform is saturated with ammoniacal water, filtered perfectly clear and boiled in a flask, a ring of droplets of moisture is seen to gradually rise on the sides of the flask as boiling commences, so that this ability of chloroform to force out water upon boiling should enable it to essentially deprive itself of moisture quite readily. At this stage, a piece of red litmus paper, moistened with alcohol, held in the vapor is instantly blued. The ability of the vapors to turn the color of red litmus paper continues long after the ring of moisture has been dissipated, so that it appears that some ammonia remains in chloroform saturated with ammoniacal water long after the water is dissipated by boiling, which would account for the negligible action of ammonium sulphate upon the alkaloid in boiling down hazy chloroformic extractions obtained in alkaloidal assaying. When the preceding experiment is conducted in an evaporating dish, in order to prevent the ring of moisture from

refluxing into the boiling chloroform, the same results are obtained; that is, some of the ammonia remains long after the moisture is apparently completely dissipated.

In order to ascertain something of the quantitative effect of this apparent ability of ammonia to prevent the action of alkaloid upon ammonium sulphate in the presence of water, two empirical solutions of strychnine alkaloid in chloroform saturated with ammonia water were prepared and the following series of experiments applied to these solutions:

Experiment No. 1 was designed to determine the strychnine content of the empirical solution and was conducted as follows: a 15-cc. aliquot was boiled down to 5 cc., 10 cc. tenth-normal sulphuric acid added; the chloroform completely boiled off and the excess of acid titrated back with fiftieth-normal sodium hydroxide, using methyl red as indicator.

Experiment No. 2 was intended to determine the effect of ammonium sulphate in the absence of ammonia and water. This experiment was conducted by boiling down a 15-cc. aliquot of the strychnine solution to 5 cc.; adding 25 cc. U. S. P. chloroform, boiling down to 15 cc.; adding 0.02 Gm. ammonium sulphate, boiling down to 5 cc.; adding 10 cc. tenth-normal sulphuric acid, etc., as in the first experiment.

Experiment No. 3 simulated conditions met with in alkaloidal assay processes and was conducted by adding 0.02 Gm. ammonium sulphate to 15 cc. of the strychnine solution, boiling down to 5 cc., adding 10 cc. standard acid, etc., as in preceding experiments.

Experiment No. 4 also simulated another set of conditions met with in alkaloidal assay work and was conducted by adding 0.02 Gm. of ammonium sulphate to a 15-cc. aliquot of the strychnine solution, followed by 30 cc. of chloroform previously saturated with ammoniacal water and filtered; boiling down to 10 cc., adding another 30-cc. portion of the ammoniacal, water-saturated chloroform; again boiling down to 10 cc.; repeating the addition of ammoniacal water-saturated chloroform twice more; boiling down after each addition; finally, boiling down to 5 cc. and adding 10 cc. standard acid, etc., as in preceding experiments.

Experiment No. 5 was intended to determine the effect of excessive water, corresponding to inadvertently drawing off some of the aqueous layer, containing ammonia and ammonium sulphate, along with the chloroformic layer, in making an alkaloidal assay. This experiment was made by adding 0.02 Gm. ammonium sulphate to a 15-cc. aliquot of the strychnine solution, boiling down to 5 cc., adding 1 cc. distilled water and 15 cc. U. S. P. chloroform; boiling down to 5 cc., adding 10 cc. standard acid, etc., as in preceding experiments.

In all of these experiments the evaporation to dryness of the solutions containing alkaloids was avoided in order to prevent the possible influence of a temperature higher than that of boiling chloroform, in effecting a partial reaction between the alkaloid and ammonium sulphate, and to avoid possibility of error due to partial destruction of the alkaloid by overheating.

The results of these experiments upon the two empirical strychnine solutions are given in terms of strychnine alkaloid in the tables on next page.

The results of these experiments seem to again indicate that the effect of ammonium sulphate is practically negligible under the ordinary conditions of

Strychnine Solution No. 1.		Strychnine Solution No. 2.	
Experiment No. 1	0.0936 Gm.	Experiment No. 1	0.1009 Gm.
Experiment No. 2	0.0936 Gm.	Experiment No. 2	0.1002 Gm.
Experiment No. 3	0.0949 Gm.	Experiment No. 3	0.1009 Gm.
Experiment No. 4	0.0949 Gm.	Experiment No. 4	0.1002 Gm.
Experiment No. 5	0.0929 Gm.	Experiment No. 5	0.0976 Gm.

analysis; although, in the presence of a great excess of aqueous solution, lower results may be obtained through prolongation of the action of the alkaloid upon the ammonium sulphate as shown by the results yielded by the experiments designated as No. 5 in the foregoing tables.

Another factor, possibly operating to prevent reaction between alkaloid and ammonium sulphate in an ammoniacal aqueous chloroformic solution, resides in the peculiar selective solvent action of chloroform for certain components of such a solution; for, whereas water is soluble in chloroform and ammonium sulphate is soluble in water, yet an aqueous solution of ammonium sulphate is not soluble in chloroform and the latter selects only water from such a solution and excludes the ammonium sulphate. Thus, it seems possible for the chloroform to mechanically isolate the alkaloid from the ammonium sulphate, although it is likely that some degree of reaction may result in the presence of water, and under the influence of heat and prolonged and intimate contact, as shown by the lower results obtained under the conditions outlined in Experiment No. 5 in the preceding series of experiments.

In spite of the apparently negligible influence of haziness of final chloroformic extracts, due to inclusion of aqueous, ammoniacal ammonium sulphate solution, upon the results of alkaloidal assays under ordinary conditions, good analytical chemical practice dictates that these extracts be perfectly clear before evaporating for titration. This clarity can often be attained by allowing the extracts to stand for some time or by filtering them. Washing the hazy extracts in a second separator with a little water is also effective (however, the aqueous washings should be extracted, in turn, with small portions of fresh solvent and the latter then combined with the main bulk of alkaloidal solution). Another satisfactory method is to agitate the hazy extracts in a second separator with a trifle of powdered tragacanth followed by filtration.

In an article entitled "On the Estimation of Alkaloids in Admixture with Vegetable Drugs," published by the writer in the Jour. A. Ph. A., Vol. XVIII, No. 3, 1929, an attempt was made to ascertain if the basicity of the ammoniacal, chloroformic extracts of several vegetable drugs was due, at least in part, to the presence of the ammonium radicle, by boiling the extracts with strychnine alkaloid. It was presumed that since "strychnine alkaloid readily liberates ammonia from even 'strong' acids," loss of ammonia would result from this treatment, if the ammonium radicle was present, and a lower total basicity would consequently result. Since the total basicity was found to check up closely with the calculated total it was concluded that the ammonium radicle was not present in the extracts. However, in the light of the results obtained in the present study the results reported in the former paper must be qualified to the extent that the amount of ammonia liberated, if present, would have likely been negligible under the conditions outlined in the recorded experiments, and so the results were not conclusive evidence that the

ammonium radicle was not present in the various drug extracts used in the experiments. The experiments have, therefore, been repeated, employing the more satisfactory method of boiling the extractive with an aqueous suspension of magnesium oxide in testing for ammonia. The ammoniacal, chloroformic extract was boiled down in a 100-cc. volumetric flask to 5 cc., the remainder being evaporated without heat by a current of air; some of the magnesium oxide suspension was added through a funnel with a long stem, so as to avoid contact of the magnesium oxide with the neck of the flask; a piece of moistened red litmus was inserted in the neck of the flask between pledgets of cotton and the contents of the flask then boiled. In the case of Cannabis and Capsicum, distinct, but not strong, alkaline reactions were obtained, while in the case of Podophyllum, Jalap and Gentian very strong reactions were obtained, the litmus paper turning deep blue as soon as reached by the steam. It would seem then that the basicity of these ammoniacal, chloroformic extracts of vegetable drugs is due, in part at least, to the presence of the ammonium radicle. However, the proportion of ammonium radicle must be quite small, since even the strong reactions on litmus paper were rendered neutral by the escaping steam from the mixture in the flask within a minute of continued boiling, just as moistened red litmus paper blued by ammonia fumes and then held in a jet of steam is soon rendered to a neutral shade.

SUMMARY.

Haziness of final chloroformic extracts, obtained in alkaloidal assaying, from ammoniacal, aqueous solutions containing ammonium sulphate, when not due to the presence of solid matter, is due to an almost colloidal suspension of a trace of the aqueous liquid from which the alkaloid was extracted. This type of haziness thus results in contamination of the chloroformic extract of the alkaloid with traces of ammonium sulphate, ammonia and water.

Under ordinary conditions, this type of haziness has but a negligible effect, if any, upon the results of titration of the alkaloid. However, in the presence of excessive water (corresponding to the inadvertent drawing-off of a portion of the aqueous layer along with the chloroformic layer), lower results may be obtained, due to liberation of ammonia from the ammonium sulphate by the alkaloid, during the evaporation process, with corresponding proportionate neutralization of the alkaloid by the sulphate radicle.

Means of insuring clarity of (absence of ammonium sulphate from) the final chloroformic extracts, preparatory to evaporation for titration, are outlined.

DISCUSSION.

BY JOHN URI LLOYD.

In connection with the foregoing paper, read by title at the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, at Rapid City, I shall presume to make a few remarks, stating in connection therewith that at my request, the privilege of reading this paper was awarded me,[1] I having from the title concluded that to me it would be very serviceable.

The estimation of alkaloids, by whatever method is adopted, is yet, in my opinion, in some directions involved in unknown complications, or rather I might put it, little known complications. Mr. Éwe has touched one of these in connection with the presence of ammonium sulphate, which, as shown by him, has a tendency to liberate ammonia during chloroformic alkaloidal extraction.

[1] By the Editor, JOUR. A. PH. A.

The paper calls attention to the haziness throughout the liquid, which Mr. Éwe finds to be "an almost colloidal suspension of a trace of the aqueous liquids from which the alkaloids are extracted." In this connection, which is one of the problems I have met in studying the meniscus between liquids, I have referred to as a characteristic of semi-physical relationships. This is touched upon by Professor Ostwald and Mr. Walter Haller, as follows:

"A phenomenon observed years ago by the senior author (John Uri Lloyd), with acetone-glycerol and other pairs of liquids, namely, the lack of sharpness of the menisci, is very remarkable."

It will be noted that this lack of sharpness of the menisci does not exactly parallel the haziness described by Mr. Éwe as follows:

"The chloroformic extractions, instead of being brightly clear, are often hazy. This haziness, if not due to the presence of solid matter, is due to an almost colloidal suspension of a trace of the aqueous liquid from which the alkaloids are extracted."

My opinion was that the haziness shown about the menisci of acetone and glycerin resultant, was by me unexplainable, nor did I attempt to do more than record the fact of observation.

Mr. Éwe has, in an independent direction, referred to a haziness, not alone a meniscus complication, but of the chloroformic liquid as a whole, indicating, as he expresses it, a disturbance of alkaloidal assaying exactness. Let me venture to hope that he will continue his research in the direction of colloidal disturbances.

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NOTES ON CASCARA SAGRADA.*

BY MILFORD HARRIS AND EDWARD D. DAVY.

The varying results reported on Cascara Sagrada, the lack of positive evidence as to the active constituents, the effect of alkalies and oxidation, led us to try fractionation of the active constituents by varying solvents only.

All of the common immiscible solvents were tried either in the extraction of the drug, or in subsequent efforts to fractionate the active material from aqueous and alcoholic extracts. Water, Ether and Ether-Alcohol mixtures were found more satisfactory than the others.

The references listed indicate the wide interest in this subject and we have consulted them freely, using such help as might apply to any particular case.

The cascara used for this work was approximately six years old and solvents used for the initial extractions were water and alcohol.

(*A*) *Water Extract.*—A preliminary extraction of twenty-five grams of drug was made in a Soxhlet with water, using an air condenser, so that the water reaching the drug was just short of boiling. When the extraction was complete the drug was dried and reëxtracted with alcohol. The alcoholic extract yielded considerable emodin, a small amount of resin, but no glucoside.

Five pounds of drug were then extracted with boiling water, and after reducing to extract by evaporating in an open container, alcohol was added to precipitate the alcohol-insoluble extractive. This was filtered and the precipitate washed thoroughly with alcohol, the filtrate and washings combined and reduced to an extract, the extract then diluted to fluidextract strength with water. A portion

* Scientific Section, A. PH. A., Rapid City meeting, 1929.

of this water-alcohol soluble extract was completely extracted with ether. (Completeness of extraction determined by absence of crystals from last extraction.) The ethereal solution on spontaneous evaporation yielded the typical rosette crystal forms referred to by others, and after several crystallizations from ether, needles were obtained having a melting point 243° to 249° C. The lowering and lack of a sharp melting point is undoubtedly due to the presence of a small amount of resin which is eliminated when crystallized from glacial acetic acid, when the melting point of emodin is reported at 250° C.

(*B*) *Alcoholic Extract.*—Soxhlet extraction made with alcohol instead of water as in *A* with water condenser. The drug was dried and reëxtracted with water. The water extract yielded no emodin, and was devoid of bitter principle, but it showed considerable reduction of Fehling's, undoubtedly due to reducing sugar not removed by alcohol.

A one-pound lot of drug was then digested in alcohol at water bath temperature, but otherwise treated as in *A*, using water to precipitate water-insoluble material. The aqueous filtrate was evaporated to fluidextract strength and a portion shaken out with ether. This again yielded the typical crystalline material (emodin) referred to in *A*, together with resin. Undoubtedly a small amount of glucoside is extracted with ether, since the aqueous wash liquid from these crystals reduces Fehling's solution.

(*C*) *Dialysis.*—The diffusate from aqueous solutions *A* and *B* when concentrated and extracted with ether, resulted in the same crystalline material admixed with resin as in *A* and *B*, and since this offered no special advantage, it was not studied further.

(*D*) *Absence of Crystalline Material from Aromatic Fluidextract of Cascara U. S. P. IX.*—One pint of fluidextract was evaporated and treated as in *A*, the alcoholic filtrate reduced and the extract made to original volume with water. Ether extractions before and after acidifying with hydrochloric acid failed to yield any crystalline material.

(*E*) *Effect of Magnesium Hydroxide on Ether Extractions A and B.*—A portion of the ether-soluble crystalline materials *A* and *B* was dissolved in alcohol, and magnesium hydroxide added in excess. The filtrates gave a negative test for emodin. The precipitate was suspended in water, acidified with hydrochloric acid and extracted with ether. Spontaneous evaporation of the ether resulted in the recovery of the crystalline emodin.

(*F*) *Glucoside.*—A small amount of sugar-bearing material was isolated by washing the crystalline material from ether extractions with water, filtering and extracting the filtrate with ether. On evaporation of the ether, colorless plates were obtained. These were again dissolved in water and it was noted that a small amount of water-insoluble resinous material appeared. This was filtered, yielding a colorless solution, and on extraction with ether the colorless plates were again obtained, but on exposure to air for twenty-four hours they became water insoluble, but reduced Fehling's solution. The fact that they did not oxidize on the first crystallization can be accounted for only by the protection afforded by the small, amber-colored resinous coating. The emodin reaction was negative, indicating perhaps a fraction, resulting from the hydrolysis of the glucoside if such a combination did exist.

Absolute alcohol as a solvent for the glucoside in a powdered extract yields a large amount of extractive, rich in sugar (glucoside) as shown by its reduction of copper. An equal volume of ether added to the alcoholic solution above precipitates a gray amorphous mass, which on exposure to air for a few hours has the appearance of tar, becoming almost insoluble in alcohol, but is completely water soluble. That portion held in solution in the alcohol-ether reduced Fehling's as did the precipitate. The fraction precipitated by the ether-alcohol mixture gave a very faint reaction for emodin, while the soluble portion gave a very positive test. Attempts to crystallize from water or alcohol failed.

(*G*) *Effect of Alkali and Oxidation on the Bitter Principle.*—Three test-tubes containing the aqueous extract which was very bitter were stoppered and set aside. Additions were made as follows and results noted after seventy-two hours:

1. Hydrogen Peroxide. Bitterness appeared to be intensified.
2. Sodium Hydroxide. Bitterness somewhat decreased.
3. Sodium Hydroxide and Peroxide. Entirely debitterized.

(*H*) *Activity of the Various Fractions.*—Because of the willingness of some of our students in helping to rate the activity of the various fractions we were able to make certain eliminations.

From five to eight individuals were given doses proportional to activity established in preliminary tests. Those which in advance tests showed no activity were given in doses when diluted to fluidextract strength from three to sixteen times the U. S. P. dosage.

1. Fluidextract made according to U. S. P. Active. No griping.
2. Same fluidextract but extracted with ether. Active. Very griping.
3. Drug extracted as in *B* and extracted with ether. Active. Very slightly griping.
4. Alcohol-insoluble material from *A*. Inactive.
5. Water-insoluble material from *B*. Inactive.
6. Ether extractives from *A* and *B*. Inactive.

The fact that No. 3 shows practically no griping and No. 2 extremely griping can be accounted for only by the fact that the alcoholic solution was reduced by distillation, thereby obviating oxidation, while the aqueous extraction *A* was reduced in an open container and at a higher temperature.

This procedure was repeated three times and always with the same result. This suggests that emodin either free or combined probably acts as an anti-griping agent, and we shall make such additions later to fraction *H*(*2*) in an effort to verify it.

CONCLUSIONS.

1. Aromatic Fluidextract of Cascara is less active than the Fluidextract because of the formation of a water-insoluble compound of the active agent, presumably the glucoside.
2. The total extractive is no criterion of activity.
3. That both acids and alkalies hydrolize the glucoside at boiling temperature.

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"TURKISH" RHUBARB.*

BY R. A. KONNERTH AND R. E. SCHOETZOW.

Our interest was recently aroused by a sample of Rhubarb offered on the market under the title of "Turkish Rhubarb."

On superficial examination, this lot appeared exceptionally good in that it was well peeled, of good bright color and free from dark centers. The odor was much less smoky than that of the Chinese Drug.

Prior to 1910 "Turkish" Rhubarb was the name given to a Chinese Rhubarb exported to Russia and from there to Turkey. The apparent revival of this custom appeared doubtful.

One of the outstanding differences from the Chinese drug was the complete

* Scientific Section, A. PH. A., Rapid City meeting, 1929.

absence of the stellate fibro-vascular bundles ("Star Spots") so common and characteristic in Chinese Rhubarb.

The plano-convex segments averaged from 8–10 cm. in length and 2–4 cm. in diameter. Most of the segments showed remnants of a dark brown spongy pith. In other respects the sections were similar to Chinese Rhubarb. The texture was not as solid and heavy, and the powder much more bulky and pink in color than that obtained from the Chinese variety.

It was observed that in experimental samples of fluidextract prepared from "Turkish" Rhubarb a considerable deposit of a yellowish crystalline nature settled to the bottom on standing. A portion of the crystalline residue from the fluidextract was identified as Rhaponticin by the solubility in alkalies and dilute alcohol. A solution of these crystals in dilute alcohol was shaken with ether and allowed to stand. Acicular crystals separated.

The U. S. P. test for Rhapontic Rhubarb was run on this lot alongside of a sample of authentic Rhapontic Rhubarb. No crystallization occurred while under observation for 72 hours.

Due to incomplete directions and the possibility of interpreting the U. S. P. Rhapontic test instructions in more than one way, the technic described in the German Pharmacopœia was followed with positive results. The crystalline precipitate from the "Turkish" Rhubarb was similar to that from true Rhapontic Rhubarb.

The German method of testing for Rhapontic Rhubarb was also applied to true Chinese Rhubarb with negative results.

We wish to point out the possibility of accepting a lot of Rhapontic Rhubarb for the official variety on the strength of negative results in the U. S. P. X test for Rhapontic Rhubarb. Modifications of this U. S. P. test are recommended and outlined in the foregoing paper.

Our experiments have conclusively proven that the so-called "Turkish" Rhubarb was none other than our old friend *Rhaponticum*.

ANALYTICAL DEPARTMENT OF THE BROOKLYN LABORATORIES,
E. R. SQUIBB & SONS.

THE INFLUENCE OF LIGHT UPON THE HYDROGEN-ION CONCENTRATION OF CERTAIN GALENICAL PREPARATIONS.*

BY JOHN C. KRANTZ, JR., AND C. JELLEFF CARR.

INTRODUCTION.

Working as a member of the committee on the actinic value of glass and of the committee on hydrogen-ion concentration of the American Drug Manufacturers' Association, one of the authors correlated certain data inter-related between the two committees which were thought to be of sufficient importance to warrant its publication in THIS JOURNAL. The pharmaceutical preparations selected were:

(1) Elixir Pepsin and Rennin Comp., N. F.
(2) Tincture of Digitalis, U. S. P.

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* Scientific Section A. PH. A., Rapid City meeting, 1929.

(3) Fluidextract of Cascara, U. S. P.
(4) Elixir Glycerophosphates Comp., N. F.
(5) Elixir Iron, Quinine and Strychnine, N. F.

The samples studied in this investigation were composite samples prepared by five pharmaceutical manufacturing houses.

Traut and Valteich (1) made an exhaustive study of the factors influencing the stability of pepsin preparations. Among other interesting data recorded by these investigators, they determined the p_H of Elixir Pepsin and Rennin Comp., N. F. to be 3.67. In a further study of the stability of pepsin preparations, Valteich (2) observed that in those pepsin preparations which lost practically all of their activity upon standing the p_H of the product when prepared was close to the optimum p_H for peptic digestion. This suggested to this investigator that, "possibly the enzyme digests itself or its carrier and so loses its activity."

The influence of light of various wave-lengths on Tincture of Digitalis has been studied extensively although there are few references in the literature to hydrogen-ion concentration studies of this product. Macht and one of the authors (3) observed a deterioration of 20 to 30 per cent in the pharmacological activity of tincture of digitalis when exposed to ultraviolet radiation in quartz tubes. The activity was measured by the cat method and the phyto-pharmacological method described by Macht and Krantz (4) and (5). The deleterious influence of polarized light upon the tincture observed by Macht with Anderson (6) and with Krantz (7) has been the subject of some controversy in the recent literature; Bond and Gray (8) observed no difference between the action of polarized light and non-polarized upon the tincture when tested by the cat method. Rojahn (9) among other preparations exposed tincture of digitalis to ultraviolet radiation for 96 hours with a mercury vapor quartz lamp in quartz tubes. He observed 20 per cent loss in activity.

Tainter (10) showed the acidity of tincture of digitalis to be equivalent to a solution of hydrochloric acid $N/10{,}000$, p_H approximately 4.6. Joachimaglu and Bose (11) determined the p_H of the tincture to be 5.88 and showed that it became somewhat more acidic upon standing. Smith (12) showed the p_H of various tinctures of digitalis to be between 5.12 and 5.77. The first author (13) found the p_H of freshly prepared tincture of digitalis to be between 5.51 and 5.88 with a mean of 5.64.

The authors found no significant work recorded in the literature regarding the hydrogen-ion concentration of Elixir Glycerophosphates Comp. N. F.; Elixir Iron, Quinine and Strychnine, N. F., and Fluidextract of Cascara, U. S. P.

EXPERIMENTAL.

Samples of these five pharmaceutical preparations were stored in partially filled amber, blue and flint glass bottles in direct light (a portion of the day sunlight). Samples were irradiated also with an Alpine Sun Lamp in quartz tubes, one-half hour weekly over six weeks.

The hydrogen-ion concentration measurements were made with a hydrogen electrode Wilson type (14) in the case of Tincture of Digitalis, Fluidextract of Cascara, and Elixer of Pepsin and Rennin. The p_H measurements of Elixer Iron, Quinine and Strychnine, and Elixir of Glycerophosphates Comp. were made by means of the quin-hydrone electrode as described by Biilman (15).

TABLE I.—ELIXIR OF PEPSIN AND RENNIN.

p_H.	Flint glass.		Blue glass.		Amber glass.		Irradiated in quartz.	
When prepared	3.85		3.85		3.85		3.85	
42 days later	4.12	Turbid	4.05	Turbid	3.83	Normal	3.97	Ppt.
70 days later	4.12	Ppt.	4.04	Ppt.	3.80	Normal		

TABLE II.—TINCTURE OF DIGITALIS.

p_H.	Flint glass.	Blue glass.	Amber glass.	Irradiated in quartz.
When prepared	5.59	5.59	5.59	5.59
42 days later	5.09	5.18	5.20	5.19
70 days later	4.89	4.87	4.98	

TABLE III.—FLUIDEXTRACT OF CASCARA.

p_H.	Flint glass.	Blue glass.	Amber glass.	Irradiated in quartz.
When prepared	4.35	4.35	4.35	4.35
42 days later	4.00	4.10	4.00	4.09
70 days later	4.15	3.96	3.97	

TABLE IV.—ELIXIR GLYCEROPHOSPHATES COMP., N. F.

p_H.	Flint glass.	Blue glass.	Amber glass.	Irradiated in qurtz.
When prepared	5.61	5.61	5.61	5.61
42 days later	5.61	5.61	5.54	5.61
	Discolored	Discolored	Well-preserved	No discolo
70 days later	5.33	5.34	5.33	
	Discolored	Discolored	Well-pres	

TABLE V.—ELIXIR IRON, QUININE AND STRYCH[illegible]

p_H.	Flint glass.	Blue glass.	Amber glass.	Irradiated in quartz.
When prepared	3.69	3.69	3.69	3.69
42 days later	7.00	6.32	3.78	Above 7.00
	Dark green	Dark green	Well-preserved	Dark green
70 days later	7.5	7.0	3.82	
	Ppt. amber color	Dark green	Well-preserved	

After 70 days the samples of Essence of Pepsin were assayed for their proteolytic activity by the Pharmacopœial method. The sample stored in amber glass compared favorably with the freshly prepared National Formulary product. Those stored in blue and flint glass showed a marked diminution in proteolytic activity.

After 70 days two samples of Tincture of Digitalis were assayed by the cat method; we are indebted to Dr. J. C. Munch of these laboratories for conducting assays on these by the official method.

TABLE VI.

Cat method.		Frog method.	
Flint glass	70 per cent	Flint glass	70 per cent
Blue glass	59 per cent	Amber glass	67 per cent
Amber glass	60 per cent		

Although there was not enough Tincture of Digitalis remaining in each sample to conduct a large number of assays, from the data obtained, there seems to be little variation among the samples when tested by the foregoing methods.

CONCLUSIONS.

1. Essence of Pepsin becomes less acidic when stored in blue or flint glass and decreases in proteolytic activity.

2. Tincture of Digitalis shows little variation in p_H whether stored in flint, blue or amber glass. The preparation tends to become more acidic upon standing.

3. Fluidextract of Cascara shows little variation in p_H whether stored in flint, blue or amber glass. The preparation tends to become slightly more acidic upon standing.

4. Elixir Glycerophosphates Comp., N. F. shows little variation in p_H whether stored in flint, blue or amber glass. It becomes discolored in flint or blue glass. The preparation tends to become slightly more acidic upon standing.

5. Elixir Iron, Quinine and Strychnine, N. F. becomes decidedly less acidic when stored in flint or blue glass which is accompanied by a marked deterioration of the elixir.

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THE THERAPEUTIC ACTIVITY OF NEOARSPHENAMINE.*

BY A. E. JURIST AND W. G. CHRISTIANSEN.

Neoarsphenamine was first introduced by Ehrlich, the discoverer of its forerunner, arsphenamine. While arsphenamine was immediately recognized as an effective antisyphilitic there were certain objections to this preparation in practical use which were based on the necessity for dissolving it in a large volume of water and alkalinizing this solution before injecting it. This objection was overcome in neoarsphenamine by treating arsphenamine with sodium formaldehydesulphoxylate to obtain a product which was rapidly water soluble and which could be administered in much more concentrated solution without adjustment. This product, further, had the advantage of being less toxic than arsphenamine.

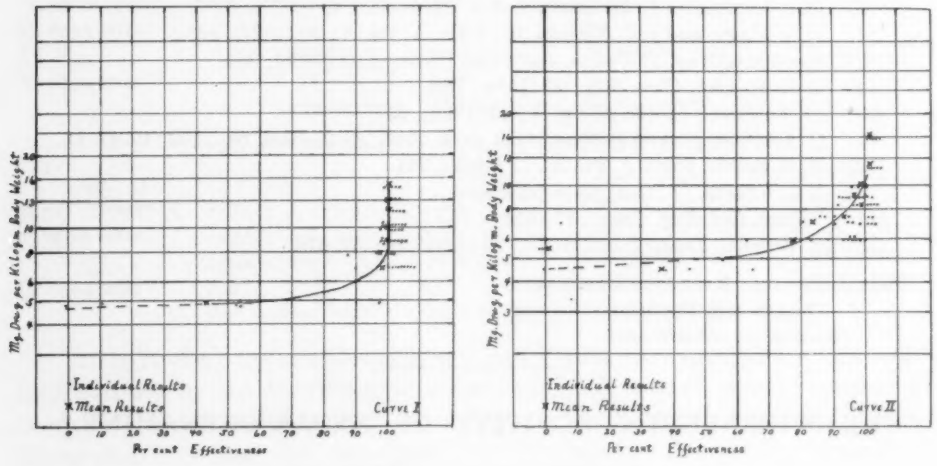
However, certain objections were also made to neoarsphenamine by some clinical workers treating syphilis; these being that neoarsphenamine was less efficacious therapeutically and more variable in its results than arsphenamine (1). This criticism was justified at least in part but it is proposed to present here the re-

* Scientific Section, A. PH. A., Rapid City meeting, 1929.

sults of an extensive research which has resulted in the manufacture on a large scale of a neoarsphenamine having therapeutic activity closely approaching that of arsphenamine when compared on an arsenic weight basis. (Neoarsphenamine has usually only two-thirds of the arsenic content of arsphenamine.) Also it is proposed to present some considerations concerning the relation between certain chemical, biological and physical characteristics of neoarsphenamine.

It has often been shown (2) that the activity of neoarsphenamine toward trypanosomes in animals is an excellent measure of its activity toward spirochetes in man. Consequently three different market brands of neoarsphenamine have been tested for trypanocidal activity toward *trypanosoma equiperdum* according to the method of Voegtlin and Miller (3) in Albino rats. The materials used represent a blend of three lots from one manufacturer, a blend of three lots from a second manufacturer, and three lots from a third manufacturer. These lots are designated by the letters A, B and C to indicate the different manufacturers and by numbers to indicate the different lots of each manufacturer. The materials were samples

Neoarsphenamine.—Curves I and II.



acquired on the open market or selected at random from stocks of routine plant production.

In order to clarify the data presented in the tables and curves it will be necessary to define certain terms used as follows.

Minimal Lethal Dose.—(M. L. D.) The lowest dose in milligrams per kilo required to kill 50% of the rats.

Minimal Effective Dose.—(M. E. D.) The lowest dose in milligrams per kilo required to reduce the trypanosome count in the blood to 4% of the original count.

Therapeutic Ratio.—Minimal Lethal Dose divided by the Minimal Effective Dose. Thus a high Therapeutic Index indicates high effectiveness in relation to dosage.

Minimal Sterilizing Dose.—(M. S. D.) The lowest dose in milligrams per kilo required to completely eliminate the trypanosomes from the blood.

Curative Ratio.—The Minimal Lethal Dose divided by the Minimal Sterilizing Dose.

In Table I the results of these studies are summarized, the data being taken from the tables from which the curves shown were plotted. The results are expressed both in terms of the milligrams of drug per kilogram used and milligrams of arsenic per kilo. The results obtained with neoarsphenamine are compared to those obtained with arsphenamine.

Neoarsphenamine.—Curves III, IV, V and VI.

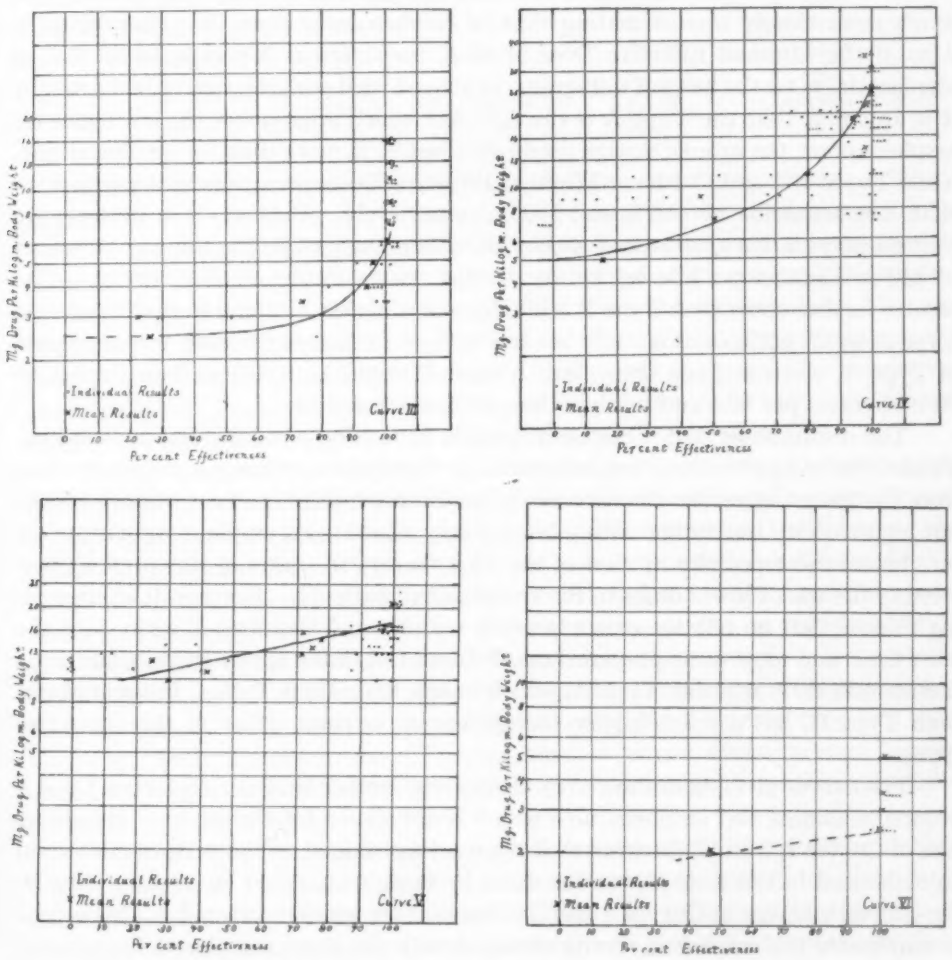


TABLE I.—SUMMARY OF RESULTS OF TRYPANOCIDAL ACTIVITY STUDIES ON NEOARSPHENAMINE.

Lot number.	Curve number.	Arsenic content in per cent.	Minimal Lethal Dose. Mg. drug per kilo.	Minimal Lethal Dose. Mg. arsenic per kilo.	Minimal Effective Dose. Mg drug per kilo.	Minimal Effective Dose. Mg. arsenic per kilo.	Therapeutic ratio M. L. D./M. E. D.
A-1	1	19.91	350	69.6	7.0	1.39	50
A-2	2	19.15	350	67.0	8.4	1.61	41.7
A-3	3	19.22	350	67.2	5.0	0.96	70.0
Average A type		19.42	350	68.0	6.8	1.32	51.5
B-1	4	20.68	425	87.9	21.0	4.34	20.2
C-1	5	20.68	300	62.1	16.5	3.41	18.15
606	6	30.19	220	66.4	2.5	0.75	88.0

These results show variations in therapeutic ratio from 18.15 to 70.0 for neoarsphenamines which are compared to a therapeutic ratio of 88 for arsphenamine. The products A-1, A-2 and A-3, made commercially according to a process developed in this laboratory, show an activity from 100% to 250% greater than any of the other lots studied, with an average therapeutic ratio two and one-half times that of the best of the other samples tested.

It is apparent that Lots A-1, A-2 and A-3 have an average therapeutic ratio much more closely approximating that of arsphenamine than the other samples. Also, if the Minimal Effective Dose of these preparations is compared to that of arsphenamine on the basis of milligrams of arsenic used per kilogram of body weight it is apparent that the Type A is the only one which approaches the low figure for arsphenamine, the arsenic dosage used being but 75% more than for arsphenamine, while Types B-1 and C-1 have Minimal Effective Doses on an arsenic basis greater than arsphenamine by 480% and 350%, respectively. Further, it is noteworthy that no preparation approached within 50 milligrams per kilo the toxicity standard of 240 milligrams per kilo set by the United States Public Health Service. The results further show that Type B while having a higher Minimal Lethal Dose than Type A by 75 milligrams per kilo has but 40% of the activity toward trypanosomes of Type A, whereas Type C has both a lower Minimal Lethal Dose than Type A by 50 milligrams per kilo and has less than 40% of its activity.

The results show that it has been possible to develop a commercial neoarsphenamine closely approaching arsphenamine in therapeutic efficacy and it is obvious from the foregoing results that a very distinct improvement has been obtained without high toxicity but rather with a low toxicity allowing an ample margin of safety for clinical use especially in view of the high therapeutic ratio of this product permitting the use of lower doses in the treatment of patients. Further, it is interesting to note that no relation exists between toxicity and therapeutic ratio since the least toxic and most toxic preparations, B-1 and C-1, have approximately the same therapeutic ratio whereas Type A, which is less toxic than Type C but more toxic than Type B, has a much higher therapeutic ratio than either of the other two types.

The curves given here show very clearly one further similarity between Type A neoarsphenamine and arsphenamine which is not shown by the others. Examination of Curves 1, 2 and 3 discloses that the results obtained on the various individual animals used in the tests at various doses lie in an area either on or very close to the curves, whereas in Curves 4 and 5 the results are widely scattered. This serves to emphasize the consistent results obtained with the three samples of Type A and the inconsistent results obtained with Types B and C. In fact the results obtained with Type A are more consistent than those obtained with the sample of arsphenamine used for comparison and serve once more to demonstrate the superiority in its biological reactions of Type A neoarsphenamine.

To further emphasize both the uniformity and effectiveness of the one type of neoarsphenamine as compared to the others and arsphenamine a further study is made of the results in the foregoing curves based not on the Minimal Effective Dose which calls for a 96% reduction in the trypanosome count in the blood but based on the Minimal Sterilizing Dose which calls for complete elimination of trypanosomes from the blood. The results are summarized in the following Table

II. All results are based on milligrams of arsenic per kilo of body weight to allow a more rigid comparison with arsphenamine.

TABLE II.—COMPARISON OF THERAPEUTIC RATIO AND CURATIVE RATIO.

Number.	Minimal effective dose from tables in mg. per kilo.	Estimated minimal sterilizing dose in mg. per kilo.	Therapeutic ratio M. L. D./M. E. D.	Curative ratio M. L. D./M. S. D.
A-1	1.39	3.19	50	21.9
A-2	1.61	3.07	41.7	21.9
A-3	0.96	3.08	70.0	21.9
Average Type A	1.32	3.11	51.5	21.9
B-1	4.34	6.0	20.2	14.61
C-1	3.41	More than 4.34	18.15	Less than 14.3
606	0.75	3.02	88.0	22.0

These results show that the arsenical in the form of neoarsphenamine of Type A required to free the blood of trypanosomes is uniform for the three lots within experimental error and but slightly different from that required in the form of arsphenamine. Furthermore, the amount of arsenical required to accomplish the same result in Types B and C is about double that for Type A or arsphenamine. The curative ratios of Types B and C are lower than for Type A, and Type A and arsphenamine have the same curative ratio within experimental error. The results emphasize once more the fact that neoarsphenamine can be made with a therapeutic efficacy closely approaching that of arsphenamine.

Having discussed the results of these studies on the toxicity and therapeutic efficacy of neoarsphenamine the relation between these results and certain chemical and physical characteristics of neoarsphenamine will be considered. For some time certain investigators have felt that there was a definite relation between the solubility, the chemical nature, the colloidal properties and the toxicity and therapeutic efficacy of neoarsphenamine. The results of previous studies on the chemistry of neoarsphenamine (4) when applied with these results show that there is no relation existing between the chemical composition and the solubility of neoarsphenamine since all the products described are of the so-called flash soluble type but differ widely in chemical composition. Further, there is obviously no relation between them in this latter respect but only the slightest detectable differences in solubility if any.

Preparations A-2 and A-3 show no significant chemical differences on analysis but they do show a marked difference in their therapeutic ratios, the therapeutic index of A-2 being 41.7 while that of A-3 is 70.0. This indicates that the chemical character of a preparation is not the sole controlling factor in determining its therapeutic activity but that its colloidal characteristics also are important. Freundlich, Stern and Zocker (5) have shown definitely that neoarsphenamine is partly colloidal in character although no evidence has yet been presented relating this fact to its therapeutic characteristics. Also, preparations B-1 and C-1 differ very widely in chemical composition but their trypanocidal activity is substantially the same, since B-1 has a therapeutic ratio of 20.2 while that of C-1 is 18.15. These results again show that the chemical nature of neoarsphenamine is not the principle factor determining its therapeutic activity.

To summarize the foregoing results, it is shown that a neoarsphenamine has been developed on a commercial scale which is less toxic than arsphenamine, only

slightly less active toward trypanosomes than arsphenamine, and as uniform in its activity toward trypanosomes as arsphenamine. It is further apparent that no relation between toxicity and therapeutic efficacy exists in neoarsphenamine; that its chemical composition is not closely related to the solubility of the product; that no relation between solubility and biological properties exists; and that although there appears to be a definite relation between chemical composition and trypanocidal activity this chemical factor is not the major controlling one in determining the trypanocidal activity of a preparation of neoarsphenamine. In conclusion the results show that a neoarsphenamine has been developed with a therapeutic index at least twice that of any other product so far tested.

The authors wish to express their thanks to Mr. H. A. Holaday and Mr. B. G. H. Thomas of the Biological Laboratories of E. R. Squibb & Sons for carrying out the trypanocidal activity tests which have been used as the basis for this paper.

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ABSTRACTS OF PAPERS READ BEFORE SCIENTIFIC SECTION, A. PH. A., RAPID CITY MEETING.

"The Rate of Oxygen Adsorption when Carstanjen's Compound Is Treated with Alkali Hydroxide," by A. A. Harwood and Edward Kremers.

When potassium sulphite and thymoquinone react di-hydroxycymene sulphonate of potassium, Carstanjen's compound is formed. KOH converts this to tri-hydroxy-cymene as may be expected. The rate at which this compound adsorbs oxygen is studied.

"The Inorganic Constituents of Echinancea," by S. H. Culter and Edward Kremers.

Large amount of potassium found in ash.

"The Heats of Formation of the Alcoholates of Chloral," by S. Chechik and Edward Kremers.

Heats of formation of series of hemiacetals made by reaction molecular amounts anhydrous chloral and alcohols of the methyl alcohol series determined.

"Cinnamal-hydroxy Sulphonates of the Alkali Metals," by S. S. Chao and Edward Kremers.

Heats of formation of Lithum, Sodium and Potassium cinnamal-hydroxy sulphonates determined. Also reaction with iodine.

"The antiseptic Action of U. S. P. and N. F. Ointments," by George F. Reddish.

A number of ointments were tested for bacteriostatic power by streaking on the surface of serum agar inoculated with Staph. aureus. Antiseptic action is indicated by a clear zone surrounding the streaked ointment, the remainder of the plate being turbid with the colonies of the test organism. Only about one-half of the U. S. P. and N. F. ointments are antiseptic, by this test.

"Methylene Blue, U. S. P. as Precipitant of Irish Moss," by George E. Ewe.

Experiments on nature of precipitation conducted.

"The Preparation of Cyclopropane," by W. A. Lott and W. G. Christiansen.

Modification of Gustavson's method developed which gives good yields of pure trimethylene free from isomeric propylene. Pure trimethylene gas has high anesthetic potency but its toxicity makes it dangerous for use.

"Transparent Life," by Arno Viehoever.

Heart beats and other body functions may readily be observed and counted in transparent forms of plant and animal life.

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Compiled by A. G. DuMez, Reporter on the Progress of Pharmacy.

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PRIZE AWARD FOUNDED BY POPULAR SCIENCE MONTHLY.

A fund has been created by *Popular Science Monthly* from which it will award annually a prize of $10,000, accompanied by a gold medal to the American citizen who has been adjudged to have made, in the preceding year, the achievement in science of the greatest potential value to the world. This award will become operative next Fall.

The purpose of this award is stated to be "to heighten the interest of the American people in those conquests of the laboratory and the workshop which benefit the entire community and to focus attention upon the many scientific workers who, without thought of personal profit, toil to better man's control over his physical surroundings."

UNVEILING OF GLYN-JONES MEMORIAL PLAQUE.

The unveiling of the memorial plaque to the late Sir William Glyn-Jones will take place at British Pharmaceutical Society Headquarters, London, on February 5th. The president of the Society (Mr. L. Moreton Parry) will preside and the ceremony will be performed by the Rt. Hon. Christopher Addison, Parliamentary Secretary to the Minister of Agriculture. Sir William is well and favorably remembered by pharmacists of this country.

ILLINOIS ATTORNEY GENERAL RULES NON-PHARMACIST CANNOT BE PARTNER IN DRUG STORE.

No person in Illinois unless he or she is a registered pharmacist may be a member of a partnership engaged in any manner in the operation of a drug store, Attorney General Oscar Carlstrom has held in an interpretation of the Illinois state statutes regulating the practice of pharmacy.

States Attorney George D. Garbray, of Elgin, asked for an interpretation of the statute recently, raising the question of the legality of a partnerhip in which one member was a registered pharmacist, while the other was not.

In reply Attorney General Carlstrom stated: "It is my opinion, that a non-registered member of a partnership engaged in any manner in the conduct of a drug store or pharmacy, whether or not he confines his activities entirely to the sale of commodities that are incidental to the drug business, would be in violation of the act."

FIRST AID WEEK.

The third week of March has been designated "First Aid Week" and this year it falls in between March 16th and 22nd; it presents an opportunity for making the public acquainted with the service of pharmacy. "First aid" has been defined as the temporary care of an injured person by simple common sense methods, based on principles of medicine and surgery, that may be applied easily by persons not professionally trained in these subjects. (See Jour. A. Ph. A. (July 1928), 699.) "First Aid Week" presents an opportunity for making the public acquainted with "first aid" items and recognized household medicines.

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor also will undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

POPULARIZING THE PREPARATIONS OF THE UNITED STATES PHARMACOPŒIA (*continued*).

BY PAUL C. OLSEN.*

The promotion problems of proprietary preparations, as contrasted with those of the non-exclusive preparations of the United States Pharmacopœia and National Formulary, are basically different. Because of this basic difference, it is clear, I think, why some retail druggists are likely to interest themselves in promoting individual proprietaries, while others are or should be concerning themselves with the promotion of the sale of U. S. P. and N. F. preparations. This is not because of any merit or lack of merit in either group of preparations; it is simply a result of the greater appeal or practicability of one promotion plan as contrasted with the other, in so far as the situation, talents and inclinations of the druggist are concerned.

What is this basic difference?

The very nature of a proprietary preparation indicates individuality, something which is different, at least in some degree, from all other preparations. In contrast, a preparation of the United States Pharmacopœia or National Formulary is standard, regardless of the particular manufacturer who made it. It is thus apparent that the promotion problem in connection with a proprietary preparation is to get acceptance for it to meet a therapeutic need, which, perhaps, has never been met before, or for which the existing medicaments are not believed to be as effective as the proprietary.

On the other hand, the U. S. P. or N. F. preparation, by its very inclusion in these standards, shows that it already has this acceptance for the therapeutic need it is designed to fill. This means, in turn, that the problem of the individual druggist, trying to promote the sale of U. S. P. and N. F. preparations, takes the form of endeavoring to persuade professional and lay patrons to continue to buy U. S. P. and N. F. preparations. In the preceding articles in this series, I have tried to indicate in as specific a way as possible the means by which this can be done, both among professional and lay patrons.

Stated as briefly as possible, therefore, this basic difference between the promotion problems of proprietary preparations and those of the U. S. P. and N. F. is one of gaining the acceptance of new things as contrasted with promoting the continued use of that which is already accepted. In this connection, it is well to point out

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once more that the United States Pharmacopœia lists those substances and preparations, which, in the judgment of the Revision Committee, are at the present time pharmaceutical necessities and of approved therapeutic value. Similarly, the National Formulary lists those substances and preparations which have found wide acceptance and use among physicians and other professionals. The problem of promoting the continued use of U. S. P. and N. F. preparations is by no means one of trying to force the acceptance of the out-moded and the out-of-date for the U. S. P. and N. F. are both revised decennially.

These contrasting promotion problems are to be found in many other professions and industries. For instance, the manufacturer of aluminum office furniture is in a position similar to that of any manufacturer of a new proprietary. The manufacturer who makes and sells the substantial mahogany and oak office furniture which we have known and accepted so long, is similarly situated to the druggist who wants to promote the sale of U. S. P. and N. F. preparations.

Some people are more capable and talented in the pioneer type of work, designed to gain acceptance for new products. The ability of others lies in the direction of efficiently distributing and promoting the continued sale of that which already is accepted and usual. Any druggist can determine for himself, readily enough, into which group his own talents and inclinations classify him.

The really unfortunate situation is the one in which the pharmacist, who is talented in one of these classifications, does not take advantage of it. He loses opportunities for personal profit and, of course, does not give to the world the full benefit of all his talents.

I have said before these two contrasting problems exist in many professions and businesses. There are, however, special considerations which apply to-day in the field of pharmacy. As I have said in the preceding articles of this series, there are to-day many opportunities which retail druggists have to promote the continued use and acceptance of U. S. P. and N. F. preparations among their professional and lay patrons. It is unfortunate that any druggist, who could apply and profitably develop these opportunities, has not done so. The profession of pharmacy is not understood or appreciated as it should be by the general public and by many in its collateral professions. The pharmacist, therefore, who has the opportunity and talents to develop additional demands for U. S. P. and N. F. preparations, not only profits from the additional demands he creates directly for them, but also from the improved professional status which he creates at the same time for himself.

Specifically, the things to do to bring about this improved professional status and profit from additional demands for U. S. P. and N. F. preparations are the following. (This is simply a summary of the specific recommendations which I undertook to explain in detail in the preceding articles of this series.)

First, consider U. S. P. and N. F. preparations not as a group, but individually. The demand which exists or can be created for each one them varies from store to store. Furthermore some preparations are household remedies and others are used only in prescriptions, or at least under professional direction. The simplest way to determine the sales possibilities of specific household remedies, is to display them in the store and in the windows, but do not bring them into merchandise displays.

The effectiveness of displays can be increased by packaging the household

remedies as professionally as prescriptions are packaged. Sometimes, too, the effectiveness of the display is increased by well-worded display cards, giving a history of the constituents, the sources of supply, etc.

With specific preparations of the U. S. P. and N. F., which are in the professional group, promotion plans must be confined to physicians and other professional people. U. S. P. and N. F. preparations useful in the practice of an individual physician can be suggested to him tactfully and informatively from the pharmacist's own knowledge of the nature of this physician's practice. The very permanency of the pharmacist in his locality makes possible inexpensive detailing of this kind not only by personal calls upon physicians, but also in telephone conversations and upon their visits to the store.

THE RELATION OF PHARMACY TO THE PUBLIC.*

BY AMBROSE HUNSBERGER.

The radical change in pharmaceutical practice which the passing of the centuries has wrought is perhaps most strikingly evidenced in the retail field. The evolution of the latter-day pharmacist, from his prototype in the person of the humble dealer in crude drugs performing his circumscribed task of assisting the doctor of his day, to the present-day graduate with his high school education, four years' pharmaceutical experience, a pharmacy college diploma in one hand and in the other a certificate from his state pronouncing him qualified to practice, represents an advance, indeed. In proportion to the increase in his cultural attainments, the position of the pharmacist as a community factor became more important and his responsibility greater.

By virtue of the character of service which may be rendered by him, the pharmacist is brought into more frequent and intimate contact with the domestic affairs of a community than is any other single element in the social structure. Be the problem in question one concerning health, hygiene, church, politics, morals, ethics, finance, or what not, the assumption is a fair one that at one stage or another in its solution you will find that the pharmacist is consulted.

The duties involved in fulfilling his obligation are exacting and the responsibilities grave. There is no middle course along which to steer. Complying with all the requirements concerning licensure, registration, permits, etc., constitutes a primary detail of preparation. Then must be provided an establishment properly equipped with official records and formularies, journals, apparatus, stock, and competently manned. Supplies must be provided in sufficient variety to meet without delay emergency calls for any one of many thousands of medicinal substances, surgical aids or hygienic devices. Proper storage facilities must be available for the protection of articles susceptible of deterioration through exposure or age. Care must be exercised in the purchase and manufacture of preparations in order that the official standard of quality may be maintained. An alert and ready force of competent assistants to meet any demands upon these resources must be on duty during many hours of each day. Constant vigilance in the field

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* Closing remarks of a Public Health Talk before Philadelphia County Medical Society.

of research must be exercised in order that new remedies may be made promptly available to the sick and suffering.

The responsibilities with which the pharmacist is charged place him in a somewhat unique position, since there is perhaps no other class of citizens given equal custodianship over the acts of their fellow citizens. The pharmacist quite naturally is responsible for his own errors and those of his assistants, as well as for the quality of drugs which he dispenses. He is further charged with responsibility for errors made by prescribers in ordering overdoses of dangerous drugs in prescriptions, and for the control of drugs which are habit forming; also for the sufficient medication of prescriptions containing alcohol and for restriction of the distribution of alcohol and liquors, for the genuineness of the form upon which liquor is prescribed, as well as for the good intent of the prescriber of liquor or narcotic drugs. Finally, he must satisfy himself that such alcoholic or narcotic preparations as he may dispense according to the law will not be applied to a wrong purpose by the purchaser. These responsibilities have been assumed cheerfully, because pharmacists as a class are primarily good citizens without inclination to shirk any duty which, if faithfully performed, promises a constructive result for the general benefit of organized society.

Despite the wonderful progress which has been made in shaping the practice of pharmacy into a useful, constructive and efficient factor in community life the complaint of the Sixteenth Century pharmacists applies to-day because of the continued prevalence of the "ignoramus who imagines himself qualified to engage in this traffic." There is, perhaps, no occupation subject to parasitic competition more frequently than pharmacy. By parasitic competition is meant that great horde of dealers in no way connected with pharmacy which bolsters up its volume of business by exploiting many of the commodities which are rightfully a part of the pharmacist's stock in trade. These parasites contribute nothing to pharmaceutical advancement, render no special service to the public, assume no responsibility for and have little knowledge of the products they handle, do not safeguard the public, acknowledge no obligation to the sick in a community, and yet take away millions of dollars' worth of business annually from the pharmacist who measures up to all of the foregoing requirements. Among those poachers in the field of pharmacy are department, cigar and grocery stores, news-stands, auto supply stations, barber shops, beauty parlors, millinery shops, feed, hardware and general stores. Maledictions are often hurled at the pharmacist because of the many side lines he carries without consideration being given to the fact that he is in but a small way compensating with his side lines for the loss of business he is suffering through unwarranted encroachment upon his field of operations by this multiplicity of interests. Solution of this problem in so far as the sales of harmless drug store commodities is concerned must come through an increasingly better service, education of the public to the need of supporting the pharmacist in time of weal, so that his services may be available in time of woe.

Throughout the length and breadth of our great country there are thousands of conscientious, upstanding, independent pharmacists, who, despite the harassments of unfair and unscrupulous competition, stand ready to fulfill their obligation to the public. They are community factors of first importance. They will not exploit your misfortunes. They represent the second line of defense in the

contest with disease. They help to build churches, schools, clubs and other community enterprises. They know you and yours. Their interest in your welfare is that of a neighbor. They work in intelligent coöperation with the regular medical profession. They do not use high-power and blatant methods to explain useless nostrums. They carry in stock the tried and tested remedies which your doctor may see fit to prescribe in your hour of need. They do not sacrifice service to expediency. These men and women in conjunction with upstanding and conscientious members of the medical profession dedicate their lives to the preservation of humanity's most precious asset, namely, its health.

And that constitutes pharmacy's true relationship to the public.

PHARMACEUTICAL PRACTICALITIES.

BY ROBERT J. RUTH.

In the "Comprehensive Standard Dictionary" the word "practical" is defined as follows:

1. Pertaining to actual experience
2. Derived from practice
3. Being such in fact or effect

The title of this paper, "Pharmaceutical Practicalities," is then appropriate inasmuch as retail pharmacy will be considered from the standpoint of the conducting of same, and illustrations based upon actual experience derived from practice will be used freely in the discussion.

First let me quote a splendid article published in the Literary Digest:

"WHAT MAKES A DRUG STORE?"

The answer to this question propounded by an editorial writer in *The Druggists Circular* is undoubtedly—drugs. Without them it would be something else. Then why not feature them, he asks, instead of laying all the stress on soft drinks, candy and light literature? He writes:

> Pharmacy is what makes a drug store a drug store. Remove it from certain stores and they would then differ but slightly from a mixture of beauty parlor, news and cigar stand, confectionery store, telephone office and "five-and-ten." Candy bazaars, tobacco shops and the rest possess strong attractions, each for its own clientele, but no one of them has that universality of appeal that is, perhaps, the drug store's chief commercial asset; in its more-or-less professional aspect lies the drug store's drawing power.
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> So thoroughly recognized is the magnetism of the mere words, "Drug Store;" displayed over the door of a place of business, that many non-pharmacists have adopted them as a part of the name of their small department stores—stores in which no pharmacy is practiced. Drugless drug stores, however, have proved to be more of a delusion than a snare. They lack one thing which they invoke to bring them customers—they lack pharmacy, a professional side, an air of superiority over the ordinary marts.
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> This, however, is a digression. The main idea is that pharmacy is the stackpole around which many a successful mercantile business is gathered. Without pharmacy the business might and probably would, go to pieces. Pharmacy, then, is entitled to the fullest recognition as the main support of the business it has built up and holds together. As such, it should be kept in evidence at all times. It is not enough for the druggist merely to say he is more than a merchant;

he will find it to his advantage to let his store be a constant reminder of the fact that he really is. We believe we should not be going much, if any, beyond the truth, if we said that, other conditions being favorable, the more pharmaceutic a drug store appears the greater its appeal to buyers.

This, then, is to remind the druggist—indeed, to urge the druggist—to feature pharmacy. It is something in which he can take a just pride; it is something which emphasizes his superiority over the mere shopkeeper; and—it pays to feature it.

Let me then consider practical methods whereby the professional aspect of the pharmacy can be perpetuated without sacrificing net profits.

As a professional man the pharmacist joins hands with the physician, the dentist and the nurse in an earnest endeavor to serve the public and conserve and protect its health. We would be amazed to walk into a hospital and find it unsanitary. We would expect an appearance of immaculate cleanliness and orderliness. Were we to visit the office of a physician or a dentist, our impression of him from the standpoint of his professional ability would naturally be influenced by his personal appearance and that of his office and laboratory. If we found a condition of uncleanliness and disorder our confidence in the man would receive a severe shock from the start.

The drug store, then, should first of all be kept immaculately clean, beginning with the glass in the show windows and extending on throughout the establishment to the rear door of the prescription laboratory. Even so, I have found drug stores which were clean but not kept orderly. Stock was placed upon shelves and in show cases in jumbled heaps and without any consideration for symmetrical display or attractiveness. A clean store with special attention to orderly stock arrangement is essential if the desired public impression is to be made.

The prescription department is the soul of the drug store and even though the public is not permitted, or should not be permitted, to enter the prescription department, physicians are and should be made well acquainted with this part of the drug store upon which the effectiveness of their diagnosis and treatment depends.

The physician is as likely to be impressed either favorably or otherwise by the appearance of the drug store prescription department as we are by the appearance of his office and laboratory when we visit him. If the laboratory is kept scrupulously clean, well stocked and orderly, the physician will feel confidence in the establishment. Dirty, cracked or broken graduates and mortars, rusty steel spatulas and other unsightly equipment detracts. Poisons and narcotics should be stored in separate cabinets; biologicals should be kept properly refrigerated and care should be exercised in the classified arrangement of chemicals and pharmaceuticals.

Pharmacists desiring a substantial prescription practice should maintain an established and methodical system of calling upon physicians and dentists in their communities. This practice has, in my observations, never been found lacking in productiveness. Some pharmacists have divided the duty of calling upon physicians with their prescription clerks.

Not only should several good trade magazines be read by the proprietor and his prescription clerks but, in order that the pharmacist may best serve the physician and the public, those journals of an exclusive professional nature, such as the JOURNAL A. PH. A. and the *American Journal of Pharmacy*, should be carefully

perused each month. I know of a number of successful pharmacists who subscribe to the *Journal of the A. M. A.* and thoroughly digest the contents of each issue. This enables them to keep up with the latest developments in medical practice, to discuss intelligently with physicians many subjects of importance, and supply them with the newest products. The advantages which these pharmacists enjoy and their enhanced reputations with the members of the medical fraternity are obvious.

Institutional advertising, featuring the professional service of the drug store, always increases the prescription business and the sale of professional products.

Inasmuch as the public sees only the windows and that part of the store in the front of the prescription case, it is essential that the windows and the display section of the store reflect a professional atmosphere.

Many pharmacists have discovered that professional window displays installed during Pharmacy Week, without the idea of direct profit, really pay handsomely. One pharmacist in California reported a 15 per cent increase in prescription business as a result of his Pharmacy Week window. Pharmacy Week experience has caused many pharmacists to install professional windows at intervals throughout the year.

It has been conclusively proven that volume can be built up by mass display of strictly drug store products, such as Milk of Magnesia, Cod Liver Oil, dental preparations and the hundreds of household and medicine cabinet supplies. Department stores have been constantly encroaching upon the sales of these products which are truly related to the drug store. In retaliation, many pharmacists have devoted their efforts to the sale of products unrelated to the drug store The result has been that they have directly encouraged department stores to further feature drug store products. In the meantime those stores which have progressed with the times but have still kept their professional atmosphere and devoted their energies to the sale of drug store products have prospered. It is obvious that one hundred dollars' worth of Cod Liver Oil sold will pay as much profit as one hundred dollars' worth of toys. It is difficult to get the toy business and the Cod Liver Oil business too.

Let me now give some examples of ideas carried out in successful stores which I have visited. In a town of about 25,000 population, a pharmacist has built up an extremely successful business on the sale of trusses, abdominal supporters, elastic hosiery, canes, crutches and related items which should really be obtainable in drug stores. He disposes of about seventy-five pairs of crutches each year. He sells about fifty canes a year. The canes are in three colors, light brown, dark brown and black. They are all of the same size and of a sturdiness suitable for the semi-incapacitated one who has just graduated from crutches. His investment on crutches and canes is comparatively small but pays a handsome profit, even though the average druggist would hardly think that the demand for crutches and canes would be very considerable.

He does not carry a stock of elastic hosiery with the exception of elastic knee and ankle supports. The greater part of this business is on made-to-measure elastic hosiery which requires no investment. The customer comes to the store for measurements, the order is sent in to the factory, the elastic stocking is made and sent to the store in a few days' time; the sales average nearly $10.00 and the profit is large.

The truss business is the largest of all and there are times when there are three or four people waiting to be fitted. The profits on abdominal supporters, elastic

hosiery, canes, crutches, trusses and related supplies amount to several thousand dollars annually.

There are to-day stores that specialize in analysis with gratifying results. This important type of professional work should not be attempted by the pharmacist who is not qualified to do it, but in instances where he is qualified he should be encouraged to engage in it.

Many stores that I have visited devote a show case to the display of enamel and glassware pertaining to the sick room. It is always attractive, and, to my mind, nothing else displayed in the drug store gives it the same professional atmosphere. Not only can this type of merchandise be sold in quantity and with profit, but it renders a distinct service to those who have to care for the sick at home, and they appreciate this service. On display these sick room supplies often call to the customer's mind many other sick room essentials to be purchased.

Theatrical make-up is an interesting and profitable side line related to the drug store. The art of make-up is extremely fascinating and in instances where the pharmacist makes a study of theatrical make-up he renders a service to the people of his community, many of whom are constantly engaging in amateur theatrical products. There is always considerable business in the line of theatrical make-up to be obtained from professional stage folk who, when directed to a certain drug store for such items, will invariably find themselves in need of many other drug store items.

Where a soda fountain forms part of the equipment of the drug store it is needless to say that cleanliness at the fountain should be of paramount importance. In instances where a luncheonette is maintained in connection with the fountain there is a service feature which it seems to me could be originated in a manner which would bring fame and fortune to the pharmacist who would incorporate it. I might even say that it would professionalize the luncheonette. To my knowledge it has never been attempted or, for that matter, even suggested. I refer to special diet luncheons for those millions who are either interested in gaining weight or reducing. The plan might not be practical to the drug store located in the small town but certainly it should be applicable to the store located in the small or the large city, particularly to a store located in a large building in the business or financial section of the large city.

Two popular-priced luncheons for the patron desiring to reduce and two for the one wishing to gain would undoubtedly suffice. Luncheons should be well-balanced and sufficient to maintain the health. They should be appetizingly prepared and served. Most important, they should be planned by a prominent dietician and this latter feature given much publicity and capitalized upon. This, I believe, would be a real service in the interest of public health, because it is quite generally known that many people have seriously injured their health by improper dieting. Again I repeat that the luncheons should be appetizing. I know of nothing more abominable than the average drug store sandwich.

Drug store deportment is an important consideration. I know of a store which was favored by a large patronage of high school students. The proprietor was the only pharmacist in the town who had graduated from the local high school. He had, in his high school days, played on the football team, and his interest in the school, its affairs and athletic victories or reverses, were perpetuated in later

years. He advertised in the school paper and the "Annual." Occasionally he was asked to address the students and he always responded. The high school purchased from his store its supplies of adhesive tapes, bandages, iodine, liniments, etc., for the athletic teams. He subscribed generously to everything pertaining to the school whenever he was approached. It followed that his store first enjoyed a good high school patronage, then it became a rendezvous and finally a "hang out" for high school students. He handled phonograph records in his store and had a phonograph upon which to demonstrate them. The day came when the moment the afternoon session at the high school was over, the students—male and female—came flocking to his store for sodas, frappés and entertainment. They were greeted and served by one or more of their classmates who were working behind the fountain. The students placed jazz records on the phonograph. Dainty slippers and heavy English brogues were soon tapping and shuffling to the irresistible strains of the jazz band. Prospective customers who came to the door were met with an astounding scene and noise; they paused and turned away. Fortunately for his business, this druggist discontinued selling phonograph records, and the phonograph disappeared from the store. High school patronage fell off somewhat, but the general business showed a marked increase.

The many problems involved in successfully conducting a retail drug store, although perplexing at times, make the drug business interesting. There is an irresistibleness in connection with the drug business which fascinates and holds those engaged in it, and even though they often complain about it, they are loth to leave it.

KEEPING INDEPENDENT.*

BY EDWARD S. ROSE.

A much used, misused and abused term in the drug field to-day is the "independent druggist." It is much used, because big business especially is bending its efforts to interest in one way or another the independent druggist. The term is misused, because when a druggist has gone into the schemes that promise coöperation he is no longer independent. It is abused, because big business interests are continually promulgating propaganda to make the druggist believe his very existence depends on their coöperation.

What is the independent druggist to do? Will he become a part of this gigantic plan of jobber and manufacturer, who promise such willing coöperation to the end that the druggist will find his path in business a "bed of roses?" Perhaps the pendulum is swinging in that direction. It will continue to swing in that direction until the independent druggist sits down and clearly thinks it over. It seems to be the way of the world for us to be swept off our feet by some new movement, without giving it careful, earnest thought.

The writer will try to show how much and why our store out in Iowa is trying to be independent. For over fifty years we have avoided compromising alliances which might in some way impair our freedom of action and thought.

Turning to Webster we find that the word "independent" is defined as, "not dependent; free; not subject to control by others; not relying on others; not sub-

* Section on Commercial Interests, A. PH. A., Rapid City meeting, 1929.

ordinate; self-governing; sovereign; not contingent or conditioned—" In our endeavor to remain independent we believe we are fulfilling these terms.

AGENCY LINES.

An agency line never appealed to us. We much prefer to build up our own lines. Why should not every druggist make his own line of household remedies, for example? There are many objections offered, but not worth while ones in most instances. The matter of labels has been a problem for some, but we solved that difficulty in the purchase of a multigraph and a few fonts of type. Many druggists have taken on agency lines, not because of lack of knowledge or ability to manufacture, but from an ever-present human failing of following the path of least resistance, for it is easier to buy than to manufacture. Here, we are maintaining an independent position in "not relying on others" for a line of household remedies, and it reacts to our advantage. We are saving money. It helps to give a professional atmosphere to the store and is an advertisement. The customer is required to return for additional purchases. The secret of every successful business is in getting repeat sales. Why should any druggist run his business so as to build up a demand for a line of products of another if there is a way out of it, for he has no way of knowing when he may lose his agency rights?

WINDOW SPACE.

We have always controlled our window space. We do not accept deals that are conditioned upon allowing a window display. The writer believes it is poor business for a druggist to buy a large quantity of goods, then give over window space, and work "tooth and nail" in order to move them. The druggist who aligns himself with a service movement and allows some one at a desk in a distant city to dictate what shall go into his show window from week to week, has certainly lost freedom of action and in turn much of his independence. If a window space is equal to one-fourth of the store space for display value, it certainly behooves the druggist to control what shall go into it.

PACKAGED GOODS.

In packaging household items under our own label we have always felt somewhat independent. The writer assumes that a large number of independent druggists buy these goods already packaged. Why should they? We find it better in every way to package them ourselves. There are twenty-five or more items that we buy in barrel, drum or one hundred-pound lots, at favorable quantity prices. We are able to package these goods at a considerable saving. Also we are in this way able to select high-grade goods and thus keep items uniform in quality. Our label on each package is an advertisement for our store, usually bringing back the customer for repeat business.

PRESCRIPTION DEPARTMENT.

We have always maintained a prescription department. Pharmacy depends on this department for its professional existence. We feel that we would not fulfill the expected services of a pharmacy if we did not fill prescriptions. The druggist who has given up the prescription case has surely slipped; he has lost a very large

part of his professional standing in the community and much of his independent position as a servant in time of need.

PHARMACEUTICAL PREPARATIONS.

We have always wanted to use our ability and assert our independence to some degree in manufacturing all pharmaceutical preparations that we could at a saving. The number is large, there being some ninety preparations, many from all classes, except pills and extracts. This work keeps us feeling more professional; it gives us an opportunity to make use of some of the training we received in college. And last but not least we find we are again saving money.

BUYING.

The retailer who has an established credit, who is thoroughly familiar with markets and values and who has the technical knowledge and industry to test his purchases, gets as much for his dollar as any chain or like combination can get. Such a one will develop needs for quantities that he may buy from first hands at very favorable prices. We give a great deal of thought and attention to buying. Not only do we purchase many raw materials in quantities, but buy direct a number of lines of household, surgical, sick-room and nursery products.

So to-day we find things are moving very fast. What the future has in store for the druggist no one seems to know. We can only visualize. Mergers, consolidations, stock-selling schemes, coöperative service offers, agency lines and what-not, are being used to interest, snare, corral and tie-up the independent druggist. Appealing offers of dividends from stocks, helps on how to run a drug store, furnishing window displays, advising how and when and where to buy, lending financial assistance, etc., all of these are being offered just to help the independent druggist remain independent and succeed in his business. Will they do it? The writer recalls an old saying, "There's a string tied to it or of course they wouldn't do it." If the independent druggist will but think it over carefully he will realize that he does not get something for nothing. If he is to receive assistance in running his business, be it financial, coöperative buying, representing an agency line, free window displays, helpful suggestions, etc., he becomes a part of a compromising alliance which will affect his freedom of action and thought as an independent druggist—to the end that he may become a servant of a large corporation, a member of a gigantic chain or perhaps just a manager.

In conclusion the writer believes our store is following the better way in keeping the business free from entangling alliances and truly independent.

BOERNER'S PHARMACY,
IOWA CITY, IOWA.

PSITTACOSIS.

Several cases of parrot disease (psittacosis) have recently been discovered in Atlantic Coast States. The death rate in cases among humans from the disease is quite large. The symptoms of the disease among humans are similar, at first, to those of typhoid fever. The germ of the disease is thought to remain around the beak and mouth of the parrot and is communicated by contact.

WHAT'S THE MATTER WITH THE DRUG BUSINESS AND WHAT'S TO BE DONE ABOUT IT?*

BY CHARLES J. CLAYTON.[1]

That there *is* something the matter with the drug business will not be disputed, but opinions differ as to just what is wrong. Some say it is overdone—there are too many stores, which is probably true, And yet, statistics tell us that there is but one drug store to more than 2000 people throughout the United States, and it would seem that we ought to be able to get by on that. Others call attention to the fact that department stores have taken from us a large part of the patent medicine and toilet goods business, which we used to call our own; that beauty parlors have captured another large part of the toilet goods business; and that the olive oil and spices and flavoring extracts, on the sale of which we formerly had almost a monopoly, have gone into the hands of the grocers, who, in turn, charge us with having unfairly entered into competition with them through the sale of articles formerly handled by them exclusively.

Still others, including the larger number, will say without hesitation that the chain stores are the cause of all our troubles. With their tremendous buying power, they are in position to demand concessions from manufacturers, which are not available to the great majority of independent retailers. Thus, the chains are able to retail many articles at prices even lower than prevailing wholesale rates, and still have a little margin to help meet the expenses of operation. While this is possible in some instances, yet it is common knowledge that the chains do not advertise patent medicines and toilet articles at or near cost with the primary object of selling those articles, but for the purpose of getting the people into their stores and then selling them other articles on which a real profit is realized.

Not that they *refuse* to sell the advertised articles, or even, except in rare instances, endeavor to switch the customer to something else, the sale of which is more desirable, a practice which once was prevalent, but has been practically abandoned by the better known chains. The more modern system is to display profitable merchandise in such an enticing manner that the customer's attention will be attracted, a desire created and *additional* sales made. Just as the smaller, independent retailer handles postage stamps, not for any profit they may yield him nor even, primarily, because he wants to sell them, but in the hope that some who come for stamps may purchase other things.

The independent druggists, especially those doing only a small business, cannot easily meet this kind of competition, for they do not have the large stocks of controlled lines, and such articles as they might be glad to sell and which would yield a satisfactory profit are unknown to the average customer and, because of the scanty stock, are not so likely to make a favorable impression. The result is that, if the small dealer attempts to meet the chain store competition, he turns over his merchandise without either direct or indirect profit; if he refuses to meet it, he is called a hold-up, and his customers go elsewhere, leaving him between the devil and the deep sea.

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* Section on Commercial Interests, A. PH. A., Rapid City meeting, 1929.

[1] Editor, *Rocky Mountain Druggist.*

No wonder then that there is much dissatisfaction and unrest, which has led to efforts to secure legislation which will make it possible for manufacturers to dictate to their distributors, both wholesale and retail, the conditions under which their products may be resold. As is well known, such efforts have been exerted in Congress for a considerable number of years and are embodied in what is known as the Capper-Kelly Bill, which, it is believed, has a fair chance of being enacted into law at the next regular session, which will convene in December.

The argument for the passage of this bill is based upon the conviction in the minds of its proponents that the present prevailing condition is an unfair trade practice, in that it injures the manufacturer and destroys his good-will value by creating sales resistance among the general run of his distributors; that it creates a condition which can only be met by exceptionally few retailers and is therefore uneconomical; that it injures wholesalers by rendering the credit of their retail customers precarious; and finally, but most important of all, from the standpoint of legislators, it would be in the interest of consumers to be assured of a wide distribution of meritorious goods, instead of having their sale concentrated in a few large stores and perhaps, discontinued entirely after their advertising value has ceased.

This bill received but scant consideration at first, but year after year has gained more friends, until, as previously stated, it is believed to have a fair chance of passing this winter. Whether it will solve the problem or not, if it does pass, is a moot question. Some, no doubt sincere, have expressed their belief that it would not help matters. Others have expressed the same opinion for the express purpose of discouraging its friends and advocates, both classes citing the fact that no manufacturer would be *compelled* to enter into contracts with his distributors, the provisions of the bill being merely permissive and not mandatory.

However, there is this to be said in its favor—some manufacturers now tell us that they are powerless to do anything to ensure their distributors a fair profit, which in some degree is undoubtedly true, while in some instances it is probaby mere camouflage. But with the passage of the Capper-Kelly Bill, this condition would be changed—manufacturers *would* have power to ensure both retailers and wholesalers a fair compensation for their respective services in placing their products in the hands of consumers, and we have enough confidence in the common sense of druggists to believe that their efforts would *not* be devoted to the sale of merchandise lacking the price protective feature.

We could then know who among the manufacturers were friends and who were not, and govern ourselves accordingly. It is the opinion of the writer that the passage of the Capper-Kelly Bill will go far toward alleviating the present unsatisfactory conditions in the drug business, though it would be too much to expect it to act as a complete panacea.

Referring again to the possibility of its passage, it should be stated that a recent inquiry, conducted by the Federal Trade Commission, developed the not unexpected fact that a great majority of consumers are opposed to any such legislation; feeling, very naturally, that anything that would be likely to bring about an increase in retail prices is undesirable. And since members of Congress look to consumers for votes at the elections, they are likely to be influenced by consumer's opinions. Hence, it behooves those of us who want this kind of legislation, to do all in our

power, not only to convince our Senators and Congressmen of its justice, but also to convince the consumers of its desirability.

In the meantime, while hoping for legislation that will help us, we need not sit with folded hands, but may well emulate the old farmer, who said "We farmers have been trying to get help from Congress but we've come to the conclusion that we'll have to use some fertilizer." And whether we get the desired legislation or not, unless we exercise the fertility of our minds and the labor of our hands, our troubles will continue. Probably they will, to some extent, anyway, for "Man is born to trouble," but they may be somewhat minimized by devoting intelligent thought to the problems by which we are confronted and then pitching in to remedy whatever wrongful conditions we may discover. And sometimes, it is surprising how easily this is accomplished. Many a time we hesitate to tackle a formidable looking job but, when driven to it, find it is not nearly the task we anticipated it would be.

First of all, in an effort to diagnose the trouble, it would seem advisable to learn all we can about our own business; and this cannot be learned without comparison with the experience of others engaged in the same line. If it were possible for a man to dissect his own body and examine it carefully, he could not by so doing learn all he should know about himself, for abnormal conditions would not be recognizable without comparison with other bodies; just so in business. The proper percentage of margin and the various items of expense can only be ascertained by study of the experience of others as well as of one's self. Fortunately, many druggists have been willing to go to the trouble of compiling figures, which have been averaged and tabulated and are available for the use of any one who wants to know how his business compares with that of others in its various details, and in what respect it may fall short of what others are accomplishing.

Such figures have been compiled by the Harvard Bureau of Business Research; the druggists of Minnesota, Iowa and the Dakotas; the Bureau of Business Research of the University of Colorado, in coöperation with the Colorado Pharmacal Association; and by drug-trade organizations in several cities; and these figures can be obtained by any who desire them. By comparison of your own figures with these averages you may readily see wherein you may be lagging behind, and having discovered your shortcoming, you may then take steps to overcome it. If for example, it is found that the percentage of sales paid for rent is materially greater than the average of other druggists, since it is not likely that the rent can be reduced, the most obvious solution is to increase the sales, thus reducing the *percentage* of rent expense.

Then, of course, comes the question—"How can the sales *be* increased?" Well we must admit the possibility of an occasional instance in which it can't be done, but it is probable that in 90 per cent or more of instances, it is possible to better the existing record. A little more attention to the window and counter displays will work wonders sometimes. Cultivation of the habit of suggesting the larger sizes or better quality, with a selling talk that will convince the customer that it will be to his advantage—such procedure may often turn a profitless transaction into one that is highly satisfactory. Running-mate sales too, are productive of real profit, and while not possible on every occasion, are possible sufficiently often to make the efforts expended well worth while. Perhaps the store might be made more attractive by a "cleaning up" process or by the judicious application of a little paint. Pos-

sibly the salesmen or even the proprietor himself may have developed a grouchy temperament, which is not conducive to sales, or they may be lacking in personal neatness. If so, these conditions should be corrected. The stock may not be kept up as it should be, or it may be advisable to add new items not now being carried, or, judicious expenditure for advertising purposes may turn the tide from hard picking to prosperity. There are but few stores in which one or more of these suggestions could not be used to advantage.

Possibly a comparison of your figures with those of other druggists may show that your gross margin is only 30 per cent instead of $33^1/_3$ per cent to 35 per cent. What then? Why, much the same procedure as outlined in the preceding paragraph may be applied, but with special emphasis on the more profitable lines of merchandise. Instead of displaying, and thus inviting the people to buy, cut-priced and therefore profitless tooth paste, concentrate your selling efforts on some brand that brings you full price. You can make far more money on a 25-cent sale of an article costing $2.00 per dozen than on a 39-cent sale of one costing $4.50 per dozen. We do not advocate refusing to sell the cut rate articles. Often they are so advertised that the customer is sold before he enters your store, and to tell him that you do not handle an article which practically every other drug stores *does* handle would create an impression that yours is a poorly run store, and would be almost suicidal. But why *invite* people to buy that kind of merchandise? Let the manufacturer do his own selling—*all* of it—and hand out his products only when demanded.

Another means of increasing the gross margin is to take advantage of such quantity deals as are suited to your conditions. If you pay $2.00 per dozen for a 25-cent article and your expense of operation is 28 per cent, you must sell 75 packages before you have one dollar of net profit, but if you can get 13 to the dozen, you will need to sell only 38 packages in order to achieve the same desirable end. In other words, your net profit is practically doubled. Fourteen to the dozen reduces the selling effort to 27 packages for each dollar of net profit, while the same result is achieved by the sale of only 21 packages, if you buy on the basis of fifteen to the dozen. Care must be exercised, however, not to overbuy, the concensus of opinion being that not more than a four-months' supply should be purchased at a time.

Taking advantage of cash discounts is also a potent means of increasing the gross margin and net profit. On the basis mentioned ($2.00 per dozen for a 25-cent article and an overhead of 28 per cent) the net profit is $5^1/_3$ per cent, and if a 2 per cent cash discount be added, the net profit becomes $6^2/_3$ per cent, an increase of more than 25 per cent. It is worthy of note, too, that, 2 per cent for cash in ten days, thirty days net, is equal to interest at the rate of $36^1/_2$ per cent per annum, which is better than *some* oil stocks pay.

Still another possibility for increased business and greater profits, I believe, lies in making our stores more distinctive than they now are. With the old fashioned show globes gone from the windows and relegation of the glass labeled shelf bottles to the rear or to the basement, or their complete disuse, there is little left to mark the distinction between many present-day drug stores and the candy shops or cigar stores. We accuse our competitors of trying to make their places look like drug stores, and no doubt they have done so, but have we not been guilty, too, of deliberately surrendering the distinctive features which formerly marked our places

of business as something different and superior, and would it not be worth while to restore them to their honored places?

Somewhat akin to this is the matter of the packaged drugs we sell—such items as Epsom and Rochelle salt, sulphur, cream of tartar, glycerin, castor oil, etc. Time was when, even though the grocer and the department store handled some of these things, the public felt that what they got in the drug store was of superior quality. But with no thought of reflection upon the quality of the numerous package lines now so universally handled, the products of any given manufacturer are the same, whether found in the drug store, the barber shop or the garage, and the public *knows* they are the same. Now, why not advertise yourself instead of some manufacturer, by putting up your own package goods? Some will say that they can buy them for less than it costs to put them up. This is not true, unless the time required is figured in at a very liberal value. And since, with rare exceptions, a very large part of the time of both employer and clerks is spent in occupations no more profitable than talking about the baseball scores or the fluctuations of the stock market, why not devote a portion of it to the useful and profitable occupation suggested? By so doing, you cannot only increase your profits on these articles, but also advertise to your patrons that you are more than a merchant.

Both volume and profit may be increased by taking full advantage of such occasions as Pharmacy Week and First Aid Week. Not only is there an immediate benefit, but prestige may thus be created, which will be reflected in additional business in the future.

The drug journals are full of money-making hints and suggestions, and often contain completely detailed plans for building business and increasing profits. One can scarcely look through a copy of any of them without discovering something which, if acted on, will bring far more than enough profit to pay a year's subscription. The Druggists' Research Bureau too, is doing a wonderful work for those who will but utilize its services. You will probably remember that in its inception, the Bureau was underwritten by a few enthusiasts, but it was announced that after its usefulness was demonstrated, it would be expected that its beneficiaries would contribute a nominal sum toward its maintenance. You are now asked to "chip in" two dollars per year, a sum that scarcely pays for the printing of the bulletins and the postage thereon. I sincerely hope that every druggist among you will do his part to keep this fine work going. Your contributions may be handed to any drug jobbers' salesman or sent directly to any wholesale house or to any drug journal published or directly to the Druggists' Research Bureau, 51 Maiden Lane, New York City.

I might go on for a long time, pointing out ways and means for improving conditions, but no speaker can solve your problems for you. All that I can hope to do is to make you think about them in a constructive way, and hope that you may be led to *apply* some of the suggestions that have been made. There is no substitute for your own efforts.

Before closing, I do want to add a note of cheer by citing a few figures that have recently come to my attention. As has previously been mentioned, the Bureau of Business Research of the University of Colorado has, for a number of years, been carrying on an annual research into the cost of operating retail drug stores in Colorado. The Bureau has been performing a like service for other merchandising

lines as well, and recently published a compilation of figures in which comparisons were made between these different lines, the salient points of which are as follows:

The percentage of net profit on volume of business done in the various lines was for general merchandise, 2%; groceries and meats, 2.4%; men's clothing and furnishings, 2.7%; drugs, 5.7%; lumber and building material 7.5%. After deducting interest on investment, the net profit resulting from operation of the business was for men's clothing, 0.4%; groceries and meats, 1.3%; lumber and building materials, 2.4%; drugs 3.7%; while general merchandise showed a net loss of 0.6%.

Now the thought will occur to you that although these other lines show a smaller *percentage* of profit than does the drug business, the greater volume done by them will result in a larger *dollar* profit. However, to my surprise, and I believe it will surprise you as well, the lumber and building material industry is the only one that leads us, either in dollars of net profit or in total income (salary plus net profit) to the operators of the various lines. Not only was I surprised at this, but equally so at the total figures, which are as follows; groceries, $3845; men's clothing, $4002; drugs, $4412; lumber, $5329. No figures were given for general merchandise.

This does not mean, of course, that every retail druggist draws down the sum named. Some did better and some not so well. But, being an average, it is a mark at which to shoot and possible of attainment. Possibly we should not find comfort in the thought that others are in worse plight than ourselves, but, for some reason, most of us do. Neither should we cease to strive for better conditions, just because we are better off than are those engaged in other lines of business. There is still much room for improvement and we should not be satisfied with any record that falls short of the very best that can be accomplished.

Finally, reverting back to the title of this paper, "What's the Matter with the Drug Business and What's to Be Done about It?," I feel like stating that there is nothing more the matter with the drug business than there is with other merchandising businesses. Conditions are changing and we must accommodate ourselves to them. We can't continue successfully along the old lines, but must keep up with the times, matching our wits against those of our competitors, whom we are prone to envy but who, if we but knew the facts, are just as uneasy as we are. Even the chains are wondering what the outcome of their ventures will be.

It is an old saying that "the grass always looks greener on the other side of the fence," and if we sometimes are a little envious, it is more than likely that many of them are equally envious of us. As far back as I can remember, I have heard it said that 90%, or more, of all who engage in any mercantile enterprise, ultimately fail, and I do not believe that conditions are growing worse in that respect; they are only changing.

Read Shakespeare's description of the apothecary in Romeo and Juliet or Dickens' graphic delineations of the druggists and drug stores of his day, or look up other examples in literature relative to the drug business of former days, and how many of us would want to go back to those conditions? "Not many," I'll venture to say.

I suggest, then, that instead of bewailing the decadence of the times and abandoning ourselves, even to a slight degree, to despair, we get together on some such

slogan as "The Drug Business Is Not So Bad—But, Let's Make It Better." I sincerely believe that by an optimistic attitude, coupled with all the knowledge we can get, not only of our own personal enterprises, but of the drug business in general, and backed by a firm determination to make the most of our opportunities, we can overcome most of whatever it is that is the matter with the drug business.

TAKING THE PRESCRIPTION DEPARTMENT OUT OF THE RED.*

Advertising may be said to have had its greatest impetus when the Government decided that it was a deductible item in making out an income tax report. Certain it is that advertising has grown by leaps and bounds and we are now in the midst of an advertising age. It is a poor cause that does not have its due share of publicity and propaganda. We mold public opinion with advertising; we try to keep within striking distance of mass production; we are doing our best to educate the dear public to consume more than it needs and to believe that luxuries are necessities. We are well on our way to the two-car-per-family stage.

I began my career in the drug business at about the time when a well-known preparation for soothing rheumatic pains to the tune of six bottles for five dollars had a large sale, and Sarsaparilla was a flourishing item. Bustles, hoop skirts, and copper-toed shoes were going out, but mustache-cups and cigar store Indians were still in vogue and going strong. National advertising was practically unknown.

In those days we never heard of women smoking cigarettes. To suggest reaching for a cigarette instead of a piece of candy would have been an insult to any young woman. Halitosis and B. O. were with us but were not referred to in polite society.

The present handmaiden of advertising, the assistant "premiere classe," is now installment selling, a thing that was frowned upon by our immediate ancestors. More recently there has entered the picture a new character representing style change.

Strangely enough, there is more money spent in advertising drug store commodities than is spent to give publicity to the entire automotive industry. Is it any wonder, therefore, that our modest prescription departments, the "submerged tenth," so to speak, receive so little attention in the way of advertising? Besides, we are surrounded by a code of ethics in the professions. Medicine cannot be advertised, even though it is a fact that we seldom find a surgeon frowning upon the publicity that comes to him because of his presence at the bedside of a king, or his signature on the two o'clock bulletin; and the truth of that statement is borne out right down the line. Locally, it is an operation on the president of the Rotary Club or a prominent church worker.

The copy writer for the professional man, however, must possess the subtle touch. He must be resourceful. He will do well to place all his superlatives in a well-concealed hiding place.

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* An address by H. S. Noel before the Section on Commercial Interests, Rapid City, South Dakota.

How shall we give the prescription department publicity in a way that will not endanger relations with the doctors? There is little to spend on the percentage of sales volume basis. We must look first to the forms of publicity, the cost of which is small.

Not all suggested ways and means of advertising are applicable to every store. Personal calls on the doctors represent publicity, cost nothing, and can be made fruitful. Many pharmacists feel it beneath their dignity to do work of this character; others appear to be timid about doing it. The pharmaceutical houses will be pleased indeed to note your interest in increasing the demand for their specialties. They can always be depended upon to coöperate to the fullest extent in supplying high-class printed matter. Manufacturers will be found following carefully-made plans laid out far in advance. They use medical journals, direct mail advertising, representatives' calls, sampling campaigns, etc., to stimulate demand. Why should they not be pleased to have the pharmacist tie up his activities locally with their national publicity? It is being done by a few pharmacists with success. Apathy on the part of the remainder seems to be the most serious difficulty to overcome.

There are available for the use of pharmacists a series of newspaper articles, short, to the point, non-technical. Call this propaganda if you will, it is still constructive, educational material. The editors of small town papers are pleased to use it in the interests of public health. They like to have some one assume responsibility for the authorship of such articles. The pharmacist helps his cause and his calling by taking credit for the articles, which mention no manufacturer's name or his product. These articles deal with simple facts concerning disease prevention. Smallpox may be the subject of one editorial, the Prevention of Diphtheria, How Rabies Is Spread, Typhoid and Its Prevention, Acute Poliomyelitis, Diabetes, Tetanus. Such articles are helpful at all times. They supply information that may not otherwise be available to certain people.

Few pharmacists realize the advertising value of an assortment of biological items kept in proper storage. They look at the immediate return only. Biologicals are here to stay. Their use is increasing; the products have attained higher standards of purity and are more specific. I know of pharmacists who, not realizing the possibilities of biologicals in their stores, contend that there is no demand. True, they had none, but when a stock was placed in the store a demand arose. Certain it is that products of this character are being used in ever-increasing amounts. Someone gets the business. Here again we have a matter of potentialities. An investment of $50.00 to $75.00 places in stock a fair assortment of biological products.

The prescription business cannot be stimulated by stunt advertising, sales appeal or merchandising effort. Anything that enhances confidence in the store, however, is good publicity. There is no better form of publicity for a pharmacist than keeping his name ever before the physicians in a favorable way.

The financial limitations of most pharmacies make it necessary to keep advertising expense down to a sum in keeping with reason.

I know a pharmacist in Colorado who finds best advertising results in the little things that are usually forgotten in the business world. He does little favors, apparently in all sincerity, simply because he enjoys doing them. As a matter of fact, he is indulging in the subtlest form of publicity and it is paying dividends.

His pharmacy is directly across the street from a professional building. On a hot summer day, at an opportune moment, he sends his fountain boy with a cooling drink over to the office of a physician or two who happen to be in and not too busy. The boy is told what to say: "Mr. Stein says you looked warm over here. He thought a drink might prove refreshing."

When the member of the family of a physician or a customer he knows is ill, in the hospital, celebrating a birthday, being graduated, or what not, Mr. Stein occasionally sends flowers. He finds it costs little and counts for much. He is careful to make inquiry concerning the condition of patients from members of the family who bring in prescriptions.

A Spokane pharmacy catered to many physicians and did a big prescription business. Having a refrigerator of large capacity and doing business with many country people, the idea came to one of the proprietors that he could do a favor for a few of his physician friends. He offered to buy butter, eggs and chickens for the doctor and store them until called for. It proved rather trying sometimes, but resulted in visits to the store by physicians, interest in the prescription department, and noticeable results. It was a species of advertising.

A small city pharmacist of my acquaintance has a scientific bent. In his pharmacy there is little opportunity to make use of his knowledge. He is fond of laboratory work, and conducts many interesting experiments. Capitalizing his talent, he writes letters every few weeks, as circumstances warrant, to the doctors in his store zone. He develops interesting points, writes of recent discoveries, new synthetics, ties up his pharmacy with tests that he has made, quotes authorities and winds up by inviting the doctors to come in and discuss the points of mutual interest. The result of his effort is that he commands the respect of every doctor in town. They look upon him as an authority in his line, bring problems to him frequently, and seek his opinion.

In Wheeling, West Virginia, is a pharmacy the proprietor of which is not complaining about the lack of prescription business. Last December a letter was sent to all the physicians in Wheeling who had sent him prescriptions during the previous twelve months. In the communication he spoke of the fact that he had filled 40,000 prescriptions during the year, of which — number had been written by the doctor addressed. He expressed gratitude for the fine coöperation accorded, said he hoped to do as well or better the coming year, etc.

He found the doctors much interested. They referred to his letter, asked where they stood in rank, expressed intentions of doing better next year, made a game out of what proved to be fine publicity for this pharmacy.

In Utah an enterprising pharmacist built a very simple and attractive window with encyclopedias opened to the full-page portraits of the men who had been President of the United States during the time that his pharmacy had filled so many thousand prescriptions. The photographs were those of Cleveland, 1885; Harrison, 1889; Cleveland, 1893; McKinley, 1897; Roosevelt, 1901; Taft, 1909; Wilson, 1913; Harding, 1921; Coolidge, 1925; and Hoover, 1929. A sign in the window read, "Cleveland Was President When We Began Filling Prescriptions."

A New York State pharmacy learns in advance the items being featured by a pharmaceutical manufacturer whose products are stocked and featured in his store. Supplementing the work of the manufacturer's detail representatives, at the time

the items are being featured in the medical journals and by direct advertising, the head prescription clerk makes from two to three calls on physicians on a rainy day. He drops in on the physician, makes his call brief, but manages to let the doctor know about the store's service, stock, etc. Occasionally, the clerk leaves a stock package of one of the store's own specialties. In particular, I refer to a 50 per cent egg emulsion of cod liver oil that was an excellent sample of pharmaceutical art. This pharmacist has been doing this for one year. His opinion is that it has been most helpful to him.

In towns of over a certain size where there are at least fifteen or more physicians and where newspaper circulation looms big in potentials, pharmacists have used educational campaigns that proved very helpful indeed.

An Indianapolis pharmacist, starting from scratch, has built up a very satisfactory business. He credits newspaper advertising with having been extremely helpful, yet in no instance has he ever referred to a single product sold in his ethical pharmacy. The copy is brief, the space small. The advertisements appear once weekly, on Wednesday evening. The purport is the value to the public of the service rendered by the physician. For example, here are two samples of the copy used.

HEED NATURE'S WARNINGS.

A sore throat or a persistent headache is a message to your brain of a condition that should be remedied. Don't attempt to treat yourself. It's always best to consult a physician. Oftentimes it will avert serious consequences later. When the physician writes a prescription, bring it to us to be filled. We are specialists at this work.

CAUSES DIFFER FROM SYMPTOMS.

Physicians treat causes, not symptoms. Self-medication means treating symptoms—quite the wrong way to go about getting rid of the trouble. A visit to the doctor, nine times out of ten is the cheapest thing in the long run. Trust your physician and your pharmacist. When the physician writes a prescription, bring it to us to be filled. We are specialists at this work.

First of all, this pharmacist sent the entire copy of the year's campaign to a selected list of doctors, asked their opinion, and supplied a post card for reply. In a letter, he expressed the thought that he could be of reciprocal assistance to the medical men of the city by doing for them what obviously they could not very well do for themselves. He told of the campaign, what it was intended to accomplish, and expressed the hope that the physicians' reaction would be favorable.

At regular intervals during the life of the campaign, which was to run for a year, this pharmacist dropped a card to the doctors, referred to his advertising, called attention to service, etc. He heard much favorable comment. The Indiana State Medical Society passed a resolution thanking this pharmacist for his interest in them and his excellent work. When the year was up, he saw so much evidence of the goodwill engendered that he felt obliged to continue the work.

A pharmacist in the State of Washington used liberal display space in newspapers, that is forceful. Some of his copy was devoted to a series of examples ending with the phrase, "Wasn't he foolish?"

Here are examples:

"A came into my store and asked me what I had for Bright's Disease. I asked him how he knew he had Bright's Disease. He answered that everyone had told him so and that for the past three years he had taken everything recommended. I sent him to a physician. He did not have Bright's Disease and for less than ten dollars he was a well, strong man. Wasn't he foolish?"

The series continued with an example of a man who for years had been treating a cough that proved to be tuberculosis. The pharmacist persuaded him to see a physician. He is now on the way to recovery. Another treated hemorrhoids, spent $500, received no benefit. A physician cured him for $15.00. A bruised skin became cancerous for lack of attention, etc.

This pharmacist also justified his prices in his copy in the following manner.

"We can buy Epsom Salt for 8 cents a pound, but we pay 22 for the best."
"We can buy alum for 16 cents a pound but for the best we pay 64 cents."

From another advertisement the following paragraph is taken:

"If an infected tonsil or appendix should not be removed because God or Nature gave it to us, why should hair or whiskers be cut, decayed teeth extracted, nails trimmed or shoes or clothes worn?"

"See your doctor when you have symptoms," says this pharmacist. In another advertisement:

"I hereby solicit all the prescription business of first-class physicians of good standing in the medical profession especially those who are as conscientious in their endeavor to make you well and keep you well as I try to be."

A Chicago pharmacist advertises in local medical journals. Fifty per cent of his volume is by telephone. When a prescription is received from a new customer, a letter is dispatched. It is a form letter neatly filled in. The first letter is followed up carefully with four or five others. This publicity has proved very helpful.

A retailer who heard of this pharmacist's plan decided to make use of it. For him it did nothing. He was careless, expected immediate results, spent considerable money and finally abandoned the idea. Advertising is not a panacea. It is cumulative in effect; it must be kept going.

Any of the ideas suggested in this talk are available to those who are interested. I will be pleased indeed to supply the complete letters, layouts, copy, etc., and to assist in any way possible. Time and space limitations prohibit the use of such exhibits here.

It is not enough to desire a prescription business. The store that wants this business must, of course, be a store of ideals, must possess character and must be prepared to live up to a high standard of service. That goes without saying.

Pharmacy is truly a business as well as a science and an art. To increase prestige the most valuable asset any store can have is the confidence of the physicians and the public. The words of Benjamin Franklin are not amiss in pharmacy. "Keep your shop and your shop will keep you."

First Aid Week—March 16th-22nd.

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

President, John A. J. Funk, Galveston, Ind. J. W. Gayle, *Treasurer*, Frankfort, Ky. Chairman of Executive Committee, John Culley, Ogden, Utah. *Secretary*, H. C. Christensen, 130 N. Wells St., Chicago, Ill.

ACTIVE MEMBER STATES.

Alabama	Indiana	Montana	Rhode Island
Alaska	Iowa	Nebraska	South Carolina
Arizona	Kansas	Nevada	South Dakota
Arkansas	Kentucky	New Hampshire	Tennessee
Colorado	Louisiana	New Jersey	Texas
Connecticut	Maine	New Mexico	Utah
Delaware	Maryland	North Carolina	Vermont
D. of Columbia	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Idaho	Mississippi	Oregon	Wisconsin
Illinois	Missouri	Pennsylvania	Wyoming

N. A. B. P. DISTRICT MEETINGS.

January has been marked with more than the usual activity in planning district meetings.

Chairman L. N. Richardson of District 2 is planning a meeting in Washington early in spring, and as this district has already developed an enviable reputation for meetings under his leadership, it is an event to be looked forward to.

Chairman F. L. Vilas, the new incumbent in District 4, has been very busy procuring pledges of attendance and has secured the required number to call a meeting in Minneapolis on February 12th, at the time of the Minnesota Pharmaceutical Association convention. 100% support has been promised by the colleges of the district. This is splendid work.

Acting Chairman Roy Bird Cook for District 5 is busy planning a meeting for that district. Chairman Scott is wintering in Florida, but has promised to be back in time for the meeting, which will be planned for the same week as the District 2 meeting, at a place to be decided later. This will enable Secretary Christensen to attend both meetings on one trip.

Chairman Allison of District 6 has called a meeting at the Plaza Hotel, San Antonio, Texas, on Friday, January 24, 1930. All delegates are urged to arrive on January 23rd in time to attend the annual banquet of the San Antonio Retail Druggists' Association, which is always a brilliant event.

IOWA SUPREME COURT UPHOLDS ASPIRIN DECISION.

The Supreme Court of Iowa in a decision handed down December 13, 1929, held that it is unlawful in Iowa for anyone other than a registered pharmacist, or one under the supervision of a registered pharmacist, to sell aspirin. This upholds the opinion given by the attorney general of the state some time ago.

The attorney general in a number of other states has given a similar opinion, but this is the first instance in which the Supreme Court of the state has confirmed the opinion, and is therefore an important victory.

STATE BOARD NEWS.

Alabama.—The Alabama Pharmaceutical Association will hold its 1930 convention en route to Havana, Cuba. All delegates will leave over Southern Railroad from Birmingham, sailing from Tampa, Florida, and returning by way of Key West and Miami. The trip will consume eight days.

Idaho.—An examination was held in the offices of the Department of Law Enforcement, Boise, Idaho, on January 21st. This was the last examination at which candidates who are not graduates of a recognized school of pharmacy were admitted. Although the college prerequisite law went into effect in 1925, there was a five-year exemption for apprentices registered at the time the law was passed and this exemption expires May 1, 1930. As no other examination will be held before that time, this examination is the last opportunity for non-graduates to register.

Illinois.—Governor Emmerson recently announced the appointment of Paul B. Johnson, of Marion, Illinois, to succeed V. C. Michels as Superintendent of Registration in the Illinois Department of Registration and Education, this being the consolidation department under which the Board of Pharmacy operates.

Announcement has also been made of the appointment of Mrs. Alice E. Pelikan, of Chicago as a member of the Board of Pharmacy examiners to succeed L. P. Larsen of Chicago, resigned. Mrs. Pelikan holds the honor of being the first woman appointed as a member of the Illinois Board of Pharmacy. She is a graduate of the University of Illinois School of Pharmacy and is in active business with her husband, who is also a graduate registered pharmacist.

Kentucky.—Governor Sampson recently appointed Gelon R. McGinnis, of Louisville, a member of the Kentucky Board to succeed William Votteler, Louisville, whose term recently expired.

An examination meeting was held in Covington on January 14th but the results were not available at time of going to press.

Maine.—An examination was held on December 11th and three out of nine candidates taking the Board examination were registered as pharmacists. The annual meeting of the Board was held at the same time and the present officers were reëlected for the ensuing year: *President*, Roy M. Hescock; *Secretary*, George O. Tuttle.

New Jersey.—Marked improvement in the conditions under which drugs, medicines and poisons are sold in the state is indicated by the Board of Pharmacy annual report submitted to the governor recently. A total of 2724 inspections of pharmacies and other types of stores selling drugs and medicines was made during the fiscal year June 1, 1928 to May 31, 1929, and 101 violations were detected. This amounts to less than 4% of violations for the entire state. The improvement in conditions is due to educational propaganda which has been carried on for the purpose of informing general merchants and others who are not licensed to sell drugs and medicines, of the provisions of the pharmacy law, thus cutting down the number of violations due to ignorance of the law.

The total number of registered pharmacists in good standing on the books of the Board is 4043, and the number of assistant pharmacists totals 314.

Registration as pharmacists was granted to 49 applicants who passed the examinations of the Board, and 45 applicants were registered by reciprocity from other states. Thirty assistant pharmacists were registered by examination during the year.

Owing to the misuse of certificates of registration by some persons who are not entitled to such certificates, the Board has made it a rule to attach the photograph of the pharmacist to each certificate of registration issued. The public is thus enabled to determine whether the person in charge of a pharmacy is the pharmacist whose certificate of registration is displayed in the store. The public has also been cautioned to look for the name of the registered pharmacist

in or upon the window of the store, as it is a requirement of the law that the name be thus displayed so that it can be seen from the outside.

Due to the improved conditions because of strict enforcement of the pharmacy law, the penalties collected by the Board decreased from $12,467.50 of the previous year to $9685.00. In view of this drop in the receipts, it has been necessary for the Board to curtail some of its activities, as it does not receive an appropriation from the state for its enforcement work. It is expected, however, that the increased examination fees and registration fees, which have become effective since the last session of the legislature, will provide the necessary funds for carrying on the work efficiently.

The Board concluded its report with the following recommendations: (1) That the pharmacy law be revised, amended or supplemented to provide: (*a*) for the annual registration of drug stores; (*b*) for the Board to be given authority to demand samples of drugs and medicines from manufacturers, wholesalers and retailers for analysis; (2) That adequate provisions be made for office facilities, storage of records and laboratory facilities for the Board in the new state office building or in the state house.

New Mexico.—The semi-annual meeting of the New Mexico Board held in October was the largest in its history in number of candidates participating. Sixty-two candidates from eight different states took the examination and out of that number twenty-eight passed.

The spring meeting will be held May 19th and 20th in Carlsbad, New Mexico. The state pharmaceutical association meets at the same time and place.

Ohio.—The Ohio Board of Pharmacy passed upon grades made by 75 applicants at an examination held in Columbus on October 15th and 16th and granted certificates to 41 of the candidates.

Reciprocal certificates were granted to Andrew Zocovic from Pennsylvania; Max Weinstein from Massachusetts; Donald A. McMillen from Pennsylvania.

The highest grade made in the examination was 92.5 per cent by Stanley E. Dorsey, of Cincinnati.

Another examination has been held since in Columbus, January 14 and 15, 1930, and the results will be announced shortly.

The Board issued a warning to manufacturers and retailers to comply with the law in regard to the labeling of poisonous preparations. The widespread use of laxative tablets and pills containing poisonous ingredients was termed a menace to public safety and especially to the health of children. A number of accidental deaths have occurred because of the promiscuous sale of these preparations, and the public not recognizing their dangerous character when not properly labeled and stored in the home.

The Ohio law provides that any preparation of the bulk of one half fluidounce or the weight of one-half avoirdupois ounce which contains more than an adult medicinal dose of any poisonous substance must be contained in a package with a poison label.

Pennsylvania.—C. C. Campbell and L. L. Walton, both well-known members of the Pennsylvania Board were recently re-appointed by the governor for another term. Percy M. Davis, of Scranton was appointed to replace Henry W. Merritt, of Plains, whose term expired.

As a result of the October examination, eight out of a class of 146 have been registered as pharmacists, and 78 out of a class of 141 assistant candidates have been granted licenses.

Texas.—The new pharmacy law in Texas provides that the Board of Pharmacy shall revoke the license of any pharmacist who is convicted of violating the Harrison Act or the Prohibition law. Such revocation to be made after a hearing on which 10 days' notice shall be given.

A hearing will be held by the Board of Pharmacy in San Antonio on January 20th for a number of pharmacists who have been convicted of violating the Harrison Act.

An examination will be begun on January 21st for a three-day period, after which a meeting of the pharmacy boards of District 6 will be held. C. B. Allison, of Dallas, chairman of the district, will preside.

The greatest measure of success is possible when all divisions of pharmacy and the drug-trade activities coöperate.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

Nearly all colleges of pharmacy are giving courses in commercial pharmacy because they appreciate the importance of this to the young man who goes into the average retail store. Whether commercial pharmacy is ethical or not is beside the question, because we must recognize the fact that the greater percentage of our graduates who go into retail pharmacy are expected to be familiar with the commercial side of the business. The following paper, "A Course in Store Management" by Professor LeBlanc is worthy of careful reading by all who are engaged in teaching commercial pharmacy.—C. B. JORDAN, *Editor*.

A COURSE IN STORE MANAGEMENT.

BY FLOYD J. LEBLANC.

Beginning with the school year of 1930, the South Dakota State College, Division of Pharmacy, will offer a four-year course and an advanced course leading to the Bachelor of Science and Master of Science degrees, respectively. In the four-year course a student, at the end of his second year's work, may major in any one of three branches of study that we offer, one of which is our course in "Commercial Pharmacy."

We have established in our School of Pharmacy a Model Drug Store with a complete drug stock which will be used as a laboratory for the instruction of our students in the various branches of "Commercial Pharmacy and Store Management."

We find that a large number of our students begin their work in Pharmacy without having had any practical drug store experience. Even students who do have experience are often found lacking in the fundamental principles of their business. The present-day proprietor is either too busy or lacks the inclination to instruct his apprentices. The apprentice is told to open and close the store at a certain time, and is occasionally taken to task for not doing his duties as the proprietor thinks they should be done. This was not the training that apprentices of years ago received. Where, then, are these apprentices and students without any practical experience going to obtain the knowledge they will need when they become fully registered pharmacists? W uld not a Model Drug Store in a School of Pharmacy directed by an experienced man be an ideal place to gain such information?

Students without practical experience who graduate and go into the modern drug stores find themselves at a loss to solve many of the problems confronting them. They are at home behind the prescription counter, but the front part of the store is more or less a dense jungle to them. There are a thousand and one new pieces of merchandise with which they must familiarize themselves, and this cannot be done in a few days' or weeks' time. A customer enters and calls for a certain article. The man without experience probably never heard of this particular article and has no idea of the price or the size and shape of the package in which it is contained, and probably would not even know where to look for it;

and if he did he would still have to search through various brands of the same product. He might find the article and maybe he would have to call one of the other clerks to help him. The waiting customer meanwhile would doubtless form a poor opinion of the service of that store.

A man with experience would immediately know where to look and what to look for. There would be no delay and no criticism on the customer's part.

A man without experience must get that experience somewhere. Up to the present time it has largely been at the expense of the store owners, but not with their full coöperation. It is our plan to give that student without experience the needed training in our Model Drug Store and thus make him a more valuable man to his employer immediately upon graduation.

Our course in Store Management will consist of both lectures and laboratory work—the laboratory work to consist of the actual handling of drug merchandise, arrangement and placing of such merchandise in the model store and show cases, and also the making of counter and window displays. In the handling of merchandise we expect to have certain students act as customers and others as clerks. The goods called for will be put up and wrapped by the clerks just as if they were being sold to a regular customer in a retail drug store. The student customers will ask questions as to price and quality and the clerks will be required to answer these questions. The clerks must also be prepared to give sale talks on the various merchandise displayed. This will necessitate outside reading on their part to learn the merits of the various lines of drugs and drug sundries to be sold. All of this work will be done under the direct supervision of the instructor who has worked in various types of retail stores.

The following is an outline of some of the topics to be discussed in the lecture room:

A. *Study of drug store sites.*
- *1.* For establishing a new store.
- *2.* Buying an old store.
- *3.* Corner site *vs.* middle of block site.

B. *In buying an old store or establishing a new store.*
- *1.* Analysis of business done or business that may be expected.
- *2.* Analysis of surrounding territory.
  - *a.* Rural or city trade.
  - *b.* Competition.
  - *c.* Other drug stores.
- *3.* Cash or charge business.
- *4.* Delivery.
- *5.* Doctors in community.
  - *a.* Prescription doctors.
  - *b.* Dispensing doctors.
  - *c.* Dentists.
- *6.* New lines to be profitably added.
- *7.* Hospitals.
- *8.* Board of Health and City Business.
- *9.* Lease.
- *10.* Rent.
- *11.* Amount of stock to be carried.
- *12.* Good will (in buying old store).
- *13.* Dead stock (in buying old store).

C. *Arrangement of fixtures.*
- *1.* Which to be given the more prominent places and why?
  - *a.* Soda fountain.
  - *b.* ℞ department.
  - *c.* Tobacco department.
  - *d.* Toilet articles.
  - *e.* Patent medicines.
  - *f.* Candy.
  - *g.* Rubber goods.
  - *h.* Sundries—kodaks — fountain pens, etc.

D. *Selection of Clerks.*
- *1.* Number.
- *2.* Sex.
- *3.* Ability to draw business.
- *4.* Wages.

E. *Ordering of Supplies.*
- *1.* Keeping of want books.
- *2.* Direct.
- *3.* Through salesman.

4. From regular wholesale houses.
5. From mutual wholesale houses.

F. *Credit.*
1. Extended to customers.
2. Credit of firm.
   a. With local banks.
   b. With wholesale houses.
3. Taking of discounts.

G. *Policy of Store.*
1. Toward customers.
   a. Is a customer always right?
   b. Exchange of articles.
   c. Guaranteed goods.
2. Toward doctors, nurses, dentists and hospitals.

H. *Danger of overstock.*
1. Free deals.
2. Special discounts on quantity buying.
3. Buying unseasonable goods.
4. Avoidance of dead or slow-moving stock.

I. *Obtaining confidence of*
1. Doctors.
   a. By coöperating with.
   b. No counter prescribing.
   c. No substitutions.
   d. Handling U. S. P. products of reliable concerns.
   e. By being "up on your profession."
2. Public.
   a. Good quality merchandise.
   b. Fair prices.
   c. Neat and clean place of business.
   d. Service rendered.

J. *Community spirit.*
1. Take part in worth while enterprises.
2. Local commercial club and credit association.
3. Rotary, Kiwanis, Fraternal and Religious organizations.

K. *Cost of doing business.*
1. Pricing of merchandise.
2. Turnover.
3. Profit on investment.

L. *Invoice.*
1. Fixtures.
   a. Depreciation.
2. Stock.
   a. Unsalable.

The above is a tentative outline of our courses in Store Management to be developed against a background of business training which will be obtained by our students in the College of Commerce. Courses required in this curricula are as follows: Business English, Business Law, Business Mathematics, Business Administration, Accounting, Advertising, Insurance, Money and Banking, Salesmanship and Psychology. Besides these courses they will also take Economics and Sociology. In our own department they will take Store Management, Window Display and Lettering and Design.

In short, with a complete set of modern fixtures and the merchandise properly found in drug stores, we hope to give the student a knowledge of all the retail practices. Sales of any merchandise contained in our Model Store will not be permitted. It is not our purpose to engage in the practice of retail pharmacy, but we do expect to give training in its practices to those students who may elect that branch of pharmacy.

The course in Commercial Pharmacy may be elected in the Junior and Senior years after the student has been thoroughly schooled in the fundamentals of Chemistry, Pharmacy and Materia Medica.

INFLUENZA GERM.

Prof. Isadore S. Falk, of the University of Chicago, lays claim to having isolated the germ of influenza; he has found it to be a streptococcus. Other scientists question the discovery. R. W. Harrison, assistant professor of biology at Southern Methodist University, worked in the laboratory of Dr. Falk during part of these investigations and has described the work carried on during this period in a letter to his superior, Dr. S. W. Geizor, head of the biology department, S. M. U.

THE AIMS OF A BOOK REVIEW.*

BY C. W. BALLARD.

The Book Notices and Reviews section of the JOURNAL has been singularly free from reviews of questionable value and this is all the more remarkable when one realizes that this portion of the publication is the work of many writers. There is necessarily considerable variation in style in these short articles, but they should all rest upon certain uniform principles if they are to be of value to the reader. These principles might be termed the objects of the review. I take it for granted that book reviews of technical publications are in quite a different category from similar notices given works of fiction or dramatic productions. The latter types of notice or criticism are largely based upon the personal opinion of the reviewer or critic. The reader of such a review is fully aware that they are personal opinions and often enjoys the variations from fact or the "roasts" which some of these critics indulge in. The authors or producers may find such criticisms irksome but have the consolation that they attract public attention and may thus be a benefit instead of a detriment to their interests. They can always point to the fact that there are instances on record of a book or play having been condemned by the professional critics, but favorably received by the public.

Book notices of technical works are more difficult of preparation than reviews of fiction and a few words regarding the qualifications of the reviewer are perhaps in order. It is presupposed that the writer of such a review has a thorough and broad knowledge of the field covered by the book. He should also have had the broadening experience of teaching, writing and research before presuming to act as an arbiter. It is true that our dramatic critics seldom write plays but the successful ones are fully conversant with the mechanism of play-writing and presentation. A critic must be of a judicial turn of mind and must avoid the superposing of his own opinions upon those of the author to the extent permissible in a dramatic criticism. He should avoid personalities in mistaken efforts to make his review interesting, for those reading the review are not seeking entertainment. He must be ready to admit other viewpoints than his own, and should not be hasty in criticising variations from the usual treatment or presentation of the subject. He should be especially careful of expressing opinions based upon the reading of a mere part of a sentence apart from the context. Even the Ten Commandments read in such a manner would be capable of some startling interpretations. In short the one reviewing a technical book should be well informed and unprejudiced, and should write his review in an impartial and an impersonal manner.

The purpose of a book review is to acquaint the reader with the form, contents and scope of the work. The article should be preceded by a statement similar to that appearing in the book lists of publishers and including—title, author's name and title, number of pages, number and type of illustrations, publisher's name, publisher's address, date of publication and price. The author's introduction should first receive attention, and this part of the book will usually indicate the purpose and aims of the work. Introductions, as a rule, receive but casual attention from readers, but they often furnish the one reviewing the book with statements of value in his article. The table of contents next claims attention

* Read by title at the A. PH. A. meeting in Portland, Me., 1927.

and at this point the reviewer must divest himself of preconceived ideas and approach the task with an open mind. He may find that the arrangement of material or the sequence of topics is different from that to which he is accustomed or that he, as an individual, thinks is proper. It is within the purpose of a review to call attention to this departure from custom, but sweeping condemnations are entirely out of place. As a rule the greater the experience of the reviewer, the more chary he is about broad statements. His review should include the titles given in the table of contents, and his comments should be made in a few well-chosen words and these untinged by too much personal opinion. As previously noted, the reader of the review is more interested in what the book contains than in the personal reactions of the reviewer.

In covering the body of the book several courses are open. One may read it in its entirety, noting errors, misstatements and discrepancies where such occur and calling attention to them. Again, the language of the review should reflect the spirit of helpful criticism and should not be an exhibition of puerile glee over the discovery of something amiss. If a thorough reading is impracticable the reviewer may select certain chapters or portions for detailed consideration. The haphazard procedure of picking out pages at random for review is unjust both to the author and the one reviewing the book. A good review of the body of a book, whether or not it be a favorable one, requires a great amount of labor and care in order to properly fulfill the purpose of the notice.

The number of illustrations in the body of the work should be noted and their character should be stated. If errors in the illustrations or captions are discovered, the reviewer should check up his opinion by reference or observation, and, if verified, should make his statement of error in a plain, judicial manner. In many technical works one or more tables or appendices are often included and these should receive as much attention as the body of the work, their titles being included in the review.

Considerable reference has been made in the preceding paragraphs to the style and language of the review, and it is not amiss to present some illustrations of what might be termed faulty reviewing technic. These examples are quoted directly from the Book Notices and Reviews section of the JOURNAL and are therefore not hypothetical instances. They are presented under four headings—general condemnations; personalities; misleading statements; general differences of opinion.

General Condemnations.—"Rather unusual book, unusual in the number of its defects;" "poorly conceived;" "unwise, it seems to the reviewer, to put this book in the hands of an unsuspecting beginner." Statements of this sort may give zest to a review, but they at once lead the reader to suspect an animosity, which is entirely out of harmony with the spirit of coöperation generally prevailing amongst learned men of this age. They hark back to the controversies which ranged among the botanists of the early part of the last century and compare very favorably with the utterances of a few newspaper critics who command attention through their iconoclastic attitude.

Personalities.—"Has paid little attention to facts;" "knows this is not true;" evidently does not mean what he states." It is hardly conceivable that an author, no matter how ill-informed he may be, will deliberately include in his work statements warranting criticisms of this sort. Furthermore, reputable publishers usually submit manuscripts to an outside critic before undertaking publication. As previously noted, there is always the possibility of errors escaping scrutiny, but these can hardly be termed errors of commission as implied by the above quotations.

Misleading Statements.—These faults generally arise through the reviewer hastily glancing through the printed page and basing a statement upon what has caught the eye. This is a most

serious fault because of its utter disregard for context and because it might almost be construed as deliberate misrepresentation. Fortunately there are very few instances of this in the JOURNAL, but occasionally it does appear, as evidenced by the following quotations. The first quotation is the language of the review while the second is from the text under review. Review—"safranin colors lignified walls blue." Text—"aniline water safranine stains suberized walls yellowish and lignified walls blue. Wash in acid alcohol and then in alcohol until washings are colorless," (cf. Zimmerman, Botanical Microtechnic, page 152). Review—"he calls wood and bast fibers conducting tissues instead of supporting tissues." Text—"In tracing the origin of plant tissues we learned that two types of conducting tissues were developed in the plerome region and that each of these was associated with a fibrous or supporting tissue. *One of these supporting tissues was termed xylem fiber or wood fiber and the other phloem fiber or bast fiber.*"

Differences of Opinion.—It has been said that this would be a dull and uninteresting world without differences of opinion. If these be honest differences and each respects the rights of the other, the very fact that there are such differences is a stimulus to progress. The reviewer may not agree with the material he is reviewing, but he can state his dissent in such a way as to show that he has due regard for opinions other than his own. A catholicity of spirit in his statements regarding differences goes far toward making the other fellow see his side.

We may summarize these opinions regarding book reviews in the following brief sentences. A book review, to fully serve its purpose, must give those reading it a clear idea of the contents, arrangement and scope of the book. It must be sufficiently complete to enable the reader to form his own judgment as to its usefulness or the desirability of purchase. While proper construction and good language are essential, the review is not a literary creation for the entertainment of the reader. The person called upon to review a book should be critical but not carping, judicial but impersonal, and should approach the task with an unprejudiced mind. His criticisms should be free from a spirit of animosity which is entirely incompatible with, and foreign to, the present-day attitude of educated men to one another.

EDITOR'S NOTE: See page 100 in January JOURNAL A. PH. A. for 1928.

VIRGINIA JOINT MEETING.

Dr. Stuart McGuire is deeply interested in the proposed joint meeting of the State medical, dental and pharmaceutical organizations which has been approved by all three of these societies. He writes:

"The physician, dentist and pharmacist all work in the broad domain of medicine, and the field of one frequently overlaps the field of the other.

"It is, therefore, necessary that the members of the three professions work in harmony, and this cannot be done unless there is personal friendship and mutual coöperation.

"The plan of teaching medicine, dentistry and pharmacy in the same institution has been found to be conducive of good results. The contact of the students with each other promotes good fellowship, and gives them a wider knowledge of professional problems than would be the case if they were taught separately.

"Just as personal friendship and professional understanding are promoted among students by contact in college, so will sympathetic coöperation be promoted among members of the three professions by contact in meetings such as the one proposed to be held.

"There are, of course, certain details of arrangements which have not yet been perfected, but in general the plan will be for each society to hold separate sessions for the transaction of business and the reading of technical papers, and for all the societies to unite in a general meeting for the discussion of subjects of common interest.

"I trust and believe the proposed meeting will be so successful that similar gatherings will be held in the future every three or five years."

COMMITTEE REPORTS

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS OF THE UNITED STATES PHARMACOPŒIAL CONVENTION.

The following amendments to the Constitution and By-Laws of the United States Pharmacopœial Convention are recommended by the Board of Trustees for adoption by the Convention at Washington, May 13, 1930. Words to be deleted are enclosed in parentheses and words to be added are printed in italics:

CONSTITUTION.

ARTICLE II.—*Membership.*

SECTION 1.—The members of the United States Pharmacopœial Convention, in addition to the Incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: Incorporated Medical Colleges, and Medical Schools connected with Incorporated Colleges and Universities; Incorporated Colleges of Pharmacy, and Pharmaceutical Schools connected with Incorporated Universities; *Departments of Incorporated Universities, which Departments are devoted to scientific research in chemistry or in other lines related to chemistry or pharmacy;* Incorporated State Medical Associations; Incorporated State Pharmaceutical Associations; the American Medical Association; the American Pharmaceutical Association, the American Chemical Society, the National Association of Retail Druggists, (and) the National Association of Boards of Pharmacy, *and the Federation of State Medical Boards of the United States;* provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

Medical and Pharmaceutical Associations and Colleges of Medicine and pharmacy in Hawaii, Porto Rico, the Philippine Islands and in the Republic of Cuba (where the Pharmacopœia of the United States has been adopted as the official pharmacopœia) shall likewise be entitled to representation by delegates on the same basis as the other Associations and Colleges mentioned in this Section.

SECTION 2.—Delegates appointed by the Surgeon General of the United States Army, the Surgeon General of the United States Navy, and the Surgeon General of the United States Public Health Service, the Secretary of Agriculture, the Secretary of Commerce, the Association of Official Agricultural Chemists, the Association of American Dairy, Food and Drug Officials, the National Wholesale Druggists' Association, the National Dental Association, the American Drug Manufacturers' Association, *the American Pharmaceutical Manufacturers' Association, the Federal Wholesale Druggists' Association,* the United States Division of Customs[1] (and the University of Havana) and by the organizations not hereinbefore named which were admitted to representation in the Convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send three delegates to the meetings of this corporation. But no such delegates as are provided for in this article shall be members until their credentials shall have been examined and acted upon as provided for by the By-Laws. Delegates admitted as members at any decennial meeting shall continue to be members of the United States Pharmacopœial Convention until their successors shall have been appointed and admitted as delegates to the ensuing Convention and no longer.

BY-LAWS.

CHAPTER VII.—*Of the Committees on Credentials and Arrangements.*

ARTICLE I. The Committee on Credentials (and Arrangements) shall consist of five members and shall be appointed by the President from among the delegates to the decennial

[1] NOTE: It being understood that the University of Havana will be included as a part of the representation accorded to the colleges and associations of the Republic of Cuba and that the elimination of the words "and the University of Havana" is recommended only in the event of the adoption of the new amendment to Section 1.

meeting, not less than two months before the meeting. *The Chairman of the Board of Trustees shall be a member ex-officio of the Committee on Credentials.*

ARTICLE II. It shall be their duty to examine carefully the credentials of all delegates. *Credentials issued in blank, leaving the names of the delegates and alternates to be inserted subsequently by other than the regularly constituted officers of the appointing associations or institutions, shall not be accepted as meeting the requirements of this Chapter.* Immediately before the meeting of the Convention they shall furnish to the President a roll containing the names of the Incorporators, the Officers of the Convention, the Board of Trustees, the General Committee of Revision and of those delegates whose credentials are unquestioned and approved. They shall also make report to the Convention concerning all credentials which have been questioned, or appear to them to be of doubtful validity.

ARTICLE III. (This Committee shall continue in office until their successors are appointed.) *The Committee on Arrangements shall consist of five members residing in or convenient to the City of Washington, D. C., and appointed by the President,* and shall be charged with the duty of making the necessary arrangements for holding the said decennial meeting. The President, Secretary and Assistant Secretary of the Convention shall be *ex-officio* members of the Committee.

CHAPTER IX.—*Of Meetings.*

ARTICLE I. The regular decennial meetings of the Convention shall be held upon the second Tuesday in May every twenty years as provided in the Constitution and the place of meeting shall be in the City of Washington, D. C., *unless, in case of emergency, the Board of Trustees and officers of the Convention, by joint vote, shall select some other place of meeting and some date within the same year other than the second Tuesday in May.* See Constitution, ARTICLE V. Twenty-five members shall constitute a quorum.

ARTICLE II. SECTION 4. Report of the Chairman of the Board of Trustees, the Secretary of the Board of Trustees, (and) the Treasurer of the Convention *and the Chairman of the Committee on Revision.*

SECTION 5. The reports of the Committees on Credentials and Arrangements shall then be considered.

AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION.

The American Pharmaceutical Manufacturers' Association held its mid-year meeting in Washington, December 16th–17th, as reported in the November JOURNAL A. PH. A., page 1216. Among the actions taken were the endorsement of an amendment to the Federal Food and Drugs Act which would extend its provisions relative to labelling to advertising of drug products; moral support was given the American Bar Association in the preparation of further uniform state laws with reference to the operations of foreign corporations; amendment of the Sherman Act and State Anti-Trust Laws was favored, which will make it lawful to take such business or trade action the purpose and effect of which shall be to promote constructive competition. The suggested amendment follows the lines of the provisions of the California law.

There was a large attendance at this mid-winter meeting; representatives of forty-one active member firms were represented and also two associated members.

COMMITTEE ON EDUCATIONAL POLICY.

The following committee was recently appointed by the American Association of Colleges of Pharmacy to consider a national education policy relative to the new four-year curriculum proposed for the schools of pharmacy, beginning with 1932, the members of the committee being: Dr. Townes R. Leigh, dean of the University of Florida College of Pharmacy; Dr. Julius A. Koch, dean of the Pittsburgh College of Pharmacy; Dr. Edward H. Kraus, dean of the University of Michigan College of Pharmacy; Dr. Rufus A. Lyman, dean of the University of Nebraska College of Pharmacy, and Dr. Henry C. Biddle, dean of the University of California College of Pharmacy.

The committee will submit its report at the annual meeting of the association, which is to be held in Baltimore during the week of May 5th.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

ARTICLE III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

BALTIMORE.

The December meeting of the Baltimore Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the Emerson Hotel on Tuesday evening, December 17, 1929.

Dr. David I. Macht, Pharmacologist for Hynson, Westcott & Dunning, was the speaker and had for his subject, "The Fourth Dimension of Pharmacodynamics."

Dr. Macht stated that the pharmacological action of any drug or medicinal agent is a very complicated subject. In order to have an adequate conception as to the nature of such action, three sets of factors must be considered by the expert pharmacologist, namely, (1) the pharmacological agent or drug, (2) the organism or subject to which the drug is administered or applied; and (3) various external factors, such as light, temperature, atmospheric pressure, the presence of bacteria, etc. These three aspects of drug action, which Dr. Macht termed figuratively the "three dimensions of pharmacodynamics," do not completely explain the many puzzling phenomena in connection with pharmacodynamics. A fourth factor is of paramount importance for a thorough scientific appreciation of the pharmacological effects of any drug or chemical, and that is the *time* factor. The speaker discussed the importance of the time element from every imaginable angle in connection with pharmacology and therapeutics. This chronological element plays a rôle not only in regard to "*time when*" a given medicinal substance is administered, but is to be considered also in connection with the *frequency* of administration of any given drug, the *speed* with which it is administered, as, for instance, in case of intravenous injections, and also the *duration* of the action of any pharmacological agent. The very useful generalization recently advocated by the eminent German pharmacologist, Professor W. Heubner of Göttingen was explained and developed in detail by the speaker. Dr. Macht showed that, in respect to the time element, drugs can be divided into three groups. The first group follows the formula, $W = C$, that is, the action, W, is directly proportionate to the concentration, C, without reference to time. In the second group, the effect of the drug, W, is expressed by the formula, $W = C \times T$, that is, the effect is a variable not only of the concentration or dosage, but of the time over which the drug acts, as, for instance, in case of digitalis, chloroform and, more particularly, of local antiseptics of the dye-stuff group which remain for a longer time in contact with the tissues, such as mercurochrome and gentian violet. In the third group, the action of the drug is also a variable of the concentration, or dose, and time, but in this case is a reciprocal of the latter, the formula being expressed by $W = \frac{C}{T}$. Here belong a large number of medicinal substances which decrease in their effectiveness progressively with the period of their administration. One of the striking examples cited by Dr. Macht was the antiseptic action of tincture of iodine.

When this tincture is painted on the skin or applied to wounds, free iodine, which in itself is an efficient antiseptic, rapidly combines with the proteins of the skin or muscle, forming organic compounds of iodine which have but little effect on bacterial growth. Thus, the efficiency of this drug is diminished inversely in proportion to the time of its application. The speaker further discussed problems of *habituation*, *habitual use* of drugs and drug addiction, all of which involve the time element. Other topics touched upon as involving directly the time factor in the action of drugs, are the *latent* period in connection with various medicinal substances, more particularly, vaccines, the *sensitization* produced by other drugs, the question of acute and *chronic* poisoning, the importance of *aging*, both from the standpoint of the medicament, that is, its keeping qualities, and of the patient, that is, the reaction of the patient or animal at various periods of life. Finally, special emphasis was laid by the speaker on the time element as exhibited in connection with the synchronous or simultaneous administration of two or more drugs and the phenomenon of synergism, to which he has devoted numerous original researches.

Vocal selections were rendered by Mr. Hugh B. McNally, baritone, with Mr. Frank J. Slama as accompanist.

B. OLIVE COLE, *Secretary-Treasurer.*

CHICAGO.

The 186th meeting of the Chicago Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held Tuesday, December 17th, at the University of Illinois School of Pharmacy.

President Lindahl opened the meeting and Prof. Gathercoal presented the following motion for consideration:

It is, therefore, moved that the chair appoint three members of the Chicago Branch to serve with a like committee from the Chicago Retail Druggists' Association in the furtherance of the following suggestions:

(1) Extend an invitation to the A. PH. A. and to such other national pharmaceutical organizations as would be appropriate, to hold their 1933 meetings in Chicago.

(2) To prepare a resolution setting forth the nature of the Chicago World's Fair in 1933 and the progress that has so far been made in this great project and suggesting to all of the great national pharmaceutical organizations the appointment of a joint committee consisting of one or two delegates from each organization to prepare a pharmaceutical exhibit in conformity to the ideals of the World's Fair.

(3) That when the two preceding items have been completed, a report from this committee, including the invitation and resolutions, be published by the committee in the pharmaceutical press.

Dean W. B. Day was appointed chairman of the above committee.

The Chicago Retail Druggists' Association have appointed a like committee composed of Mr. Riemenschneider and Mr. Sisson.

A nominating committee was appointed with Mr. Wm. Gray as chairman.

Mr. H. S. McCracken was next introduced and presented a most interesting travelogue, taking the audience with him on his trip, leaving the United States, stopping in Sumatra and Java, and on an extensive trip through India. He told of the life and customs of India in a most interesting and fascinating way, accompanied by numerous pictures, which were tinted in the natural colors, showing the magnificence and beauty to be found in India.

At the conclusion of the most delightful journey with Mr. McCracken there was a rising vote of thanks.

S. W. MORRISON, *Secretary.*

NORTHERN OHIO.

On November 8th, the Northern Ohio Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION had a dinner meeting at the Hotel Statler with Dr. H. V. Arny, of the Columbia University College of Pharmacy, as its guest and speaker for the evening. Members of the Northern Ohio Druggists' Association were invited to be present. There were fifty-three seated at the tables and ten or a dozen more came in to hear the talk after dinner.

The Council of the Branch met just prior to the open dinner meeting for its regular monthly meeting, at which time new members were voted in. The report of the Nominating Committee was received. There are four members of Council to be elected by ballot between this meeting and the December meeting and at the December meeting Council will elect officers for the new year.

Dean Spease introduced Dr. Arny, calling attention to the fact that Dr. Arny was selected as speaker for two reasons, first, because

he advocated in 1914 the establishment of a society which he termed the American Institute of Prescriptionists, and secondly, because of the large number of pharmacists in this city who know him and are his friends.

In introducing the speaker Mr. Spease outlined the organization and told its purpose. He said, in part, that the society is at the present time called the Northern Ohio Branch of the A. PH. A., that it was organized in 1928 and has held a meeting each month since that time with the exception of the summer months. The meetings of Council have been held as dinner meetings, starting promptly at 6:00 P.M. and always closing before 7:30. He said that the attendance at these council meetings had been practically perfect. He stated that anyone who is a member of the AMERICAN PHARMACEUTICAL ASSOCIATION is eligible to make application for membership; that the Association had received some applications for membership and application for membership in the AMERICAN PHARMACEUTICAL ASSOCIATION at the same time; that membership in the A. PH. A., however, does not guarantee acceptance of a member into the local branch, but he is entitled to make application.

He stated the different classifications of membership into active, junior, privileged and others, that the actual business of the organization is conducted by Council, that the Council is made up of sixteen men and at the present time the membership of the society is about twenty, that there are some additional applications pending, that at the present time the dues for active members are $15.00 per annum, $5.00 of which is sent to the A. PH. A. to pay the annual dues in that society, that it is the hope of the organization to have a carefully selected list of members, that no one will be admitted to membership who is not particularly interested in professional and scientific pharmacy, that in the case of the retailer the man and his store will both be scrutinized in determining fitness for membership, while in the case of the teacher and research worker his connections, if any, with business organizations outside of any institutional work that he may be doing as well as the nature of his institutional work will likewise be scrutinized in determining his fitness. He emphasized the fact that one of the requirements was high ideals and integrity. It was found necessary to defer Dr. Arny's talk on Professional Pharmacy for a succeeding issue of the JOURNAL.

At the speaker's invitation, a number of questions were asked in reference to his talk, and an informal discussion of a number of the points followed.

NORTHWESTERN.

The Northwestern Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION and the Wulling Club of the University of Minnesota held a joint meeting on the morning of Thursday, December 12th, in the main lecture room of the College of Pharmacy. Instructor Almin, President of the Northwestern Branch, presided with the assistance of Mr. Richard Laska, President of the Wulling Club. The feature of the meeting was an address by Mr. J. C. Lawrence, assistant to the President of the University of Minnesota, who spoke on the pharmaceutical, medicinal and industrial uses of rubber, but also touched upon many other interesting subjects. The address was exceedingly interesting and was enthusiastically received by the student body and the faculty.

Pharmacist Poetz of St. Peter contributed a most interesting item to the proposed pharmaceutical museum, namely; an old blood-letting instrument. The days of blood-letting seem now to be part of ancient times, but this little instrument hardly shows any signs of age.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch, A. PH. A., was held in the P. A. R. D. Building on December 10th.

President Hoch called the meeting to order. The secretary presented his report for the month and it was accepted.

Chairman Charles T. Pickett, of the Committee on Practical Pharmacy, reported that his committee would conduct the meeting in January. He promised a very interesting meeting and announced that the feature would be a Prescription Clinic. The Clinic, which is an annual affair, is devoted to the discussion of the various problems encountered in the compounding of difficult and unusual prescriptions. The members were requested to bring to the meeting those prescriptions which they have compounded at various times in which difficult problems were encountered.

President Hoch presented Mr. Raymond Hendrickson, the speaker of the evening, who gave a very interesting and valuable talk on "Christmas Merchandising." Mr. Hendrickson has had a wide experience in the field of advertising and merchandising and he pre-

sented a number of useful ideas for the retail pharmacist. He stated that the average retail pharmacist, especially the neighborhood pharmacist, failed to get his share of Christmas business because he did not exhibit the proper spirit in his store. He emphasized the importance of cleaning the stock and fixtures in order to give a brighter appearance to the store. This should be done not later than December first. The decoration of the show cases, windows and the stock with small sprays of holly, ribbon and other things which symbolize the Christmas spirit is important. This brings before the public the idea that they can secure many useful and practical gifts in their own neighborhood. The speaker also impressed the importance of caution in buying Christmas merchandise. Many standard drug store products with little effort can be transformed into Christmas stock. After Christmas the decorations can be removed and the stock is just as useful as previously. This prevents an unnecessary outlay for stock which if not sold must be stored away for the following season.

At the close of the talk the speaker demonstrated how easily standard stock could be transformed into Christmas stock. He used a number of standard drug store products and the effect was outstanding. Following this the members had a very enthusiastic discussion and many valuable ideas were expressed. After adjournment the members enjoyed a delightful luncheon in the dining room of the P. A. R. D. Building.

The Philadelphia Branch did not hold its regular monthly meeting in November, due to the joint meeting of the pharmacists and physicians of Philadelphia sponsored by the P. A. R. D. In order to make this meeting most successful the A. PH. A. Branch members at their regular meeting in October voted to omit the regular November meeting and join with the P. A. R. D. members.

This meeting was one of the most successful in the history of the Philadelphia associations and was largely attended by both physicians and pharmacists.

The President of the Philadelphia County Medical Society, President Krusen, Dean Charles LaWall, Prof. E. F. Cook of the Philadelphia College of Pharmacy and Science, Dean John R. Minehart of the Temple University School of Pharmacy, John Woodside of the Pennsylvania State Board of Pharmacy and Charles T. Pickett of the P. A. R. D. were the principal speakers. A number of prominent physicians and pharmacists presented their views on how closer relations could be established between the professions of pharmacy and medicine.

A supper was served at the conclusion of the meeting by the members of the P. A. R. D.

FRANK H. EBY, *Secretary.*

CANNABIS TO BE INCLUDED IN NARCOTIC DRUGS IMPORT AND EXPORT ACT.

Senate Bill 2075, by Senator Morris Sheppard, seeks to amend the Act of May 26, 1922, as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Act of May 26, 1922, amending the Narcotic Drugs Import and Export Act, be amended as follows: Insert between the words "coca leaves" and the word "cocaine," where these words first occur in subdivision (*a*), Section 1, the words "cannabis indica, cannabis sativa;" also insert between the words "coca leaves" and the words "or cocaine" in said subdivision the words "cannabis indica, cannabis sativa," so that the said subdivision (*a*), Section 1, of the said Act of May 26, 1922, shall read as follows:

"(*a*) The term 'narcotic drug' means opium, coca leaves, cannabis indica, cannabis sativa, cocaine or any salt, derivative or preparation of opium, coca leaves, cannabis indica, cannabis sativa, or cocaine."

NARCOTIC TRAFFIC.

An extensive illicit narcotic traffic with ramifications in several continents was recently discovered at Basle on information supplied by Egyptian police resulting in an arrest of a number in Switzerland, Germany, Italy and France. Two ring-leaders in the traffic who are said to be qualified Swiss and German chemists and manufacturers are under arrest and have confessed.

The Federal drive against three narcotic rings said to transact a nation-wide business from New York recently resulted in sixteen arrests.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1929–1930.

Office of the Secretary, 10 West Chase Street, Baltimore, Md.

LETTER NO. 4.

December 7, 1929.

To the Members of the Council:

30. Use of Text of the N. F. V. Motion No. 5 (See Council Letter No. 3, page 1272) has been carried and Dean Edward Spease has been notified.

31. Election of Member. Motion No. 6. (See Council Letter No. 3, page 1273) has been carried and applicants for membership numbered 36 to 73 inclusive are declared elected.

32. Increase in Budget Appropriation for 1929 for Printing, Postage and Stationery. The office of the ASSOCIATION has been called upon to send out an unusual number of letters, bulletins, etc., during the year in connection with the Pharmacy Corps Bill, the Parker Bill and other legislative measures for which no special appropriations were made. It is necessary to request that this appropriation be increased from $1300 to $1500, and the request has the approval of the Committee on Finance.

(*Motion No. 7*) *It is moved by Bradley that the appropriation for Printing, Postage and Stationery for 1929 be increased from $1300 to $1500.*

33. Budget for 1930. The Committee on Finance, through its chairman, presents to the Council the following list of appropriations to cover the various expenditures of the ensuing fiscal year, in accordance with Article II of Chapter II of the By-Laws of the Council.

APPROPRIATIONS FOR GENERAL EXPENSES.

No. 1 Salaries	$11,700.00
No. 2 Rent	1,020.00
No. 3 Telegraph and Telephone	200.00
No. 4 Clerical Expenses	1,500.00
No. 5 Printing, Postage and Stationery	1,300.00
No. 6 Office Supplies	150.00
No. 7 Traveling Expenses	1,300.00
No. 8 Premium on Bonds	60.00
No. 9 Auditing	75.00
No. 10 Certificates	50.00
No. 11 Miscellaneous Expenses	150.00
No. 12 Scientific Section	25.00
No. 13 Section on Education and Legislation	25.00
No. 14 Section on Practical Pharmacy and Dispensing	25.00
No. 15 Section on Commercial Interests	25.00
No. 16 Section on Historical Pharmacy	25.00
No. 17 Commission on Proprietary Medicines	50.00
No. 18 Committee on Local Branches	25.00
No. 19 Committee on Membership	1,000.00
No. 20 Committee on Legislation	100.00
No. 21 Committee on Syllabus	50.00
No. 22 Committee on Unofficial Standards	100.00
No. 23 Committee on Colored Glass Containers	50.00
No. 24 Drug Trade Bureau of Public Information	400.00
No. 25 International Pharmaceutical Federation	120.00
No. 26 Metric Association	10.00
No. 27 American Conference on Hospital Service	25.00
No. 28 Headquarters Building Campaign	4,000.00
No. 29 Year Book	4,500.00
No. 30 Library	100.00
	$28,160.00

APPROPRIATIONS FOR OPEN ACCOUNTS.

No. 31 JOURNAL:		
(*a*) Publication	$9,500.00	
(*b*) Clerical Expenses	1,000.00	
(*c*) Postage and Stationery	300.00	
(*d*) Freight, Drayage and Miscell	200.00	
		$11,000.00
No. 32 National Formulary		1,000.00
No. 33 Recipe Book		1,000.00
No. 34 Badges and Bars		50.00
		$13,050.00
		$41,210.00

(*Motion No. 8*) *It is moved by Bradley that the budget for 1930 as submitted be approved.*

34. Selection of Auditors. Chairman Bradley of the Committee on Finance recommends the employment of W. A. Johnson & Company, Baltimore, Md. to audit the accounts of the ASSOCIATION for 1929 in accordance with Article 8 of Chapter IV of the By-Laws. This Company has audited the accounts since 1922.

(*Motion No. 9*) *It is moved by Bradley that W. A. Johnson & Co. be employed to audit the accounts of the Association for 1929 at the budget appropriation.*

35. Contract for Printing and Mailing the Journal of the A. Ph. A. for 1930. The following communication has been received from Chairman DuMez of the Committee on Publications:

> "I have in hand the bids obtained by Editor Eberle on the cost of publishing the JOURNAL OF THE ASSOCIATION for 1930.
>
> "After having given these bids fairly close study, I find that there will be no advantage to the ASSOCIATION in changing the publisher at this time.
>
> "Since there is nothing new or unusual in these bids, I see no reason for placing them before the Publication Committee. As Chairman of that Committee, I am, therefore, recommending to the Council that our contract with the Mack Printing Company for the publication of the JOURNAL be renewed for the coming year, the terms to be the same."

(*Motion No. 10*) *It is moved by DuMez that the contract for printing and mailing the Journal for 1930 be awarded to the Mack Printing Company, of Easton, Penna.* At the request of Chairman DuMez, a vote on this motion is called for at this time but will be considered as tentative if there is objection.

36. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received.

No. 74, George J. Backoff, 3431 Field Ave., Detroit, Mich.; No. 75, Connie F. Czapski, 4848 Buchanan St., Detroit, Mich.; No. 76, Leo F. Gabel, 2192 Lenox Ave., Detroit, Mich.; No. 77, Margaret Savage Gary, 905 Baldwin Ave., Norfolk, Va.; No. 78, Leo. M. Kallejian, 923 Whittier Blvd., Montebello, Calif.; No. 79, Lucy Massenburg, 420 W. 22nd St., Houston, Texas; No. 80, Harold James McDonald, 4229 Brooklyn Ave., Seattle, Wash.; No. 81, B. A. Oleszkowicz, 6739 Michigan Ave., Detroit, Mich.; No. 82, J. B. Pilchard, 321 State Theatre Bldg., Harrisburg, Pa.; No. 83, Abigail B. Poole, 6043 31st Ave., N. E., Seattle, Wash.; No. 84, John Richard, 7070 Michigan Ave., Detroit, Mich.; No. 85, John R. Sawyer, 367 Centre St., Jamaica Plain, Mass.; No. 86, Alexander Slowik, 7501 W. Warren Ave., Detroit, Mich.; No. 87, Harold E. Stowell, 4708 18th Ave., N. E., Seattle, Wash.; No. 88, Ernest Louis Tigges, Peterson, Iowa; No. 89, Earl Voelker, 5012 17th St., N. E., Seattle, Wash.; No. 90, George J. YaDeau, 116 Maiden Lane, New York, N. Y.

(*Motion No. 11*) *Vote on applications for active membership in the American Pharmaceutical Association.*

37. Applicant for Membership on Account of Contribution to the Headquarters Building Fund. The following non-member of the A. PH. A. has pledged $25.00 or more to the Headquarters Building Fund and has made a cash payment of $5.00 or more. He is entitled to membership and you are requested to vote on the application which has been properly endorsed.

H-2, George Edward Harvey, 705 E. Huron St., Missouri Valley, Ia.

(*Motion No. 12*) *Vote on application of contributor to the Headquarters Building Fund for membership in the American Pharmaceutical Association.*

E. F. KELLY, *Secretary.*

LETTER NO. 5.

December 23, 1929.

To the Members of the Council:

38. Increase in Budget Appropriation for 1929 for Printing, Postage and Stationery. Motion No. 7 (See Council Letter No. 4, preceding) has been carried and this budget item has been increased to $1500.

39. Budget for 1930. Motion No. 8 (See Council Letter No. 4, preceding) has been carried and the budget as submitted is approved.

40. Selection of Auditors. Motion No. 9 (See Council Letter No. 4, preceding) has been carried and W. A. Johnson & Co. will audit the accounts for 1929.

41. Contract for Printing and Mailing the Journal of the A. Ph. A. for 1930. Motion No. 10 (See Council Letter No. 4, preceding)

has been carried and the contract is awarded to the Mack Printing Company, of Easton, Penna.

42. Election of Members. Motions Nos. 11 and 12 (See Council Letter No. 4, preceding) have been carried and applicants for membership numbered 74 to 90 inclusive and H-2 are declared elected.

43. Life Membership. Mr. Milton Campbell, Philadelphia, Pa., has become a Life Member of the A. PH. A. through the payment of $25.00.

44. Committee on Unofficial Standards. The following letter has been received from Chairman Gathercoal:

> "Enclosed please find the resignation of Mr. E. H. Gane from the Committee on Unofficial Standards of the A. PH. A. I have had further correspondence with Mr. Gane asking him to continue with his work on this Committee but he regretfully declines again, urging the press of other work.
>
> "I would recommend to the Council that the resignation of Mr. Gane be accepted and that an expression of appreciation for the good work that he has done on the Committee be sent to him.
>
> "I would take the liberty of suggesting to the Council, Dr. H. W. Youngken, of Boston as a nominee for the vacancy. The work of the Committee is largely with crude drugs and the pharmacognosists on the Committee now constitute somewhat less than a half of the Committee. Dr. Youngken is one of the leading pharmacognosists in America."

It will be recalled that the By-Laws of the A. PH. A. were amended at the Rapid City meeting to make this a standing committee of the ASSOCIATION elected by the Council and that Mr. Gane was elected for a term of three years. (See Council Letter No. 1, Item No. 17.)

(*Motion No. 13*) *It is moved by Dunning that Mr. Gane's resignation be accepted with regret and with an expression of appreciation for the good work he has done as a member of the Committee.*

Dr. H. W. Youngken is nominated for this vacancy. Members of the Council are requested to submit other nominations promptly and a vote will be called for in two weeks unless there is objection or unless there should be discussion.

45. Use of the Text of the N. F. V. The following letter has been received from Chairman DuMez of the Committee on Publications:

> "I have gone over the final proof of Prof. Rogers' textbook on Pharmaceutical Chemistry, and find that the author and publisher have made the changes requested. I am, therefore, recommending to the Council that permission to use the text of the National Formulary in Prof. Rogers' book on Pharmaceutical Chemistry be granted to Lea & Febiger, and that the customary fee of $5.00 be charged for this grant."

(*Motion No. 14*) *It is moved by DuMez that Messrs. Lea and Febiger be granted permission to use the text of the N. F. V for partial reproduction in a textbook on Pharmaceutical Chemistry by Chas. H. Rogers and at the usual charge of $5.00.*

46. Local Secretary for 1930 Meeting. Mr. S. Y. Harris, of Baltimore is nominated as *Local Secretary* by H. A. B. Dunning. Mr. Harris is a former president of the Maryland Pharmaceutical Association and is the president of the Baltimore Retail Druggists' Association.

If members of the Council desire to submit other nominations, they are requested to do so promptly. A vote will be called for in two weeks unless there is objection or unless there should be discussion.

47. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received:

No. 91, Charles T. Allen, 1430 N. Grant Ave., Kittanning, Pa.; No. 92, M. W. Bamford, 8 South Fifth St., Reading, Pa.; No. 93, William J. Bayer, 536 Maplewood Ave., Ambridge, Pa.; No. 94, William E. Brooks, 4137 14th Ave., N. E., Seattle, Wash.; No. 95, R. S. Brown, 10553 Warren Ave., W., Detroit, Mich.; No. 96, Lynn Emerson Bryan, 407 Market St., Clearfield, Pa.; No. 97, Grant B. Burns, 10340 W. Warren Ave., Dearborn, Mich.; No. 98, Nelson J. Burley, 6718 W. Warren Ave., Detroit, Mich.; No. 99, Irving E. Cohen, 2001 Fullerton Ave., Chicago, Ill.; No. 100, H. H. Crosby, Rolling Road, Relay, Md.; No. 101, Frank Fioic, 124 R. R. Ave., Apollo, Penna.; No. 102, John LeRoy Forsythe, 710 Mifflin Ave., Wilkinsburg, Pa.; No. 103, Alex Hyde, c/o Mentholatum Co., Wichita, Kans.; No. 104, Max N. Lemberger, 1344 Wells Bldg., Milwaukee, Wis.; No. 105,

Jack C. Marsh, 331 2nd St., Aspinwall, Pa.; No. 106, J. E. Melody, Schaefer & Ford Roads, Dearborn, Mich.; No. 107, John J. Nichols, c/o Iodine Educational Bureau, 64 Water Street, New York, N. Y.; No. 108, Samuel H. Oswald, Jr., 217 Howard St., Butler, Penna.; No. 109, R. C. Oyer, 201 Meade St., Wilkinsburg, Pa.; No. 110, Craig E. Pearce, 313 Elsdon St., N. S., Pittsburgh, Penna.; No. 111, Sam Thomas Shear, 5511 Hays St., Pittsburgh, Pa.

(*Motion No. 15*) *Vote on applications for active membership in the American Pharmaceutical Association.*

48. Applicant for Membership on Account of Contribution to the Headquarters Building Fund. The following non-member of the A. PH. A. has pledged $25.00 or more to the Headquarters Building Fund and has made a cash payment of $5.00 or more. He is entitled to membership and you are requested to vote on the application which has been properly endorsed.

H-3, Vito Armando Pittaro, 590 Morris Ave., New York, N. Y.

(*Motion No. 16*) *Vote on application of contributor to the Headquarters Building Fund for membership in the American Pharmaceutical Association.*

E. F. KELLY, *Secretary.*

OKLAHOMA ANTI-NARCOTIC LAW.

The Compiled Statutes of Oklahoma, 1921, Section 8887, make it unlawful for any person to have in his or her possession or under his or her control more than one dose of certain narcotics and that one dose must have been procured on the prescription of a physician, for legitimate medicinal use. The case reported is on an appeal to the Oklahoma Court of Criminal Appeals. Officers found in the residence of the appellant 2½ grains of morphine tablets. The appellant admitted the possession of morphine in a quantity forbidden by law, but she contended that it was prescribed by a physician for illness and to relieve pain and that its possession under such circumstances was lawful. To corroborate that testimony she introduced the testimony of the physician who gave the prescription and of a pharmacist who filled it. The prosecution produced testimony, however, indicating that she and her co-defendant were engaged in disposing of or administering narcotics. The quantity of narcotics possessed by the appellant, said the court, was more than that permitted to be possessed at any one time, under any circumstances, by any one other than a physician, pharmacist or certain persons engaged in excepted businesses. If the evidence showed that these narcotics were acquired of a registered pharmacist on a prescription from a physician, it showed that both acted unlawfully, and proof that possession was acquired in that manner would not be a defense. The judgment of conviction was affirmed.

IOWA ASPIRIN DECISION.

The Supreme Court of the state of Iowa on Friday, December 13th, sustained the action of the District Court restraining a grocery store from selling aspirin. The Court held that under the express provisions of Section 2578, Paragraph 1, a person is deemed to be engaged in the practice of pharmacy who engages in the business of selling, or offering or exposing for sale, drugs. This the record shows the appellant did. He therefore was subject to injunction to restrain him from engaging in such business. Even if Section 2580 were unconstitutional, it would not necessarily follow that the appellant would not be subject to injunction for engaging in the business of selling what was in fact a drug, under Section 2578. The Court held that the record establishes the fact that the appellant was engaged in the business of selling, or offering or exposing for sale, aspirin, which is a drug and which is not a proprietary medicine. Therefore he was subject to an injunction restraining him from engaging in said business. The decree of the District Court was affirmed. It should be noted that the comprehensive report is very briefly quoted in the foregoing.

ABSTRACTS OF SCIENTIFIC SECTION, 1929.

"Assay of Ointment Mercury Oxide Yellow," by L. W. Greene and R. E. Schoetzow.

Three methods yielding unsatisfactory results and two methods yielding satisfactory results are discussed.

"Quantitative Methods for the Study of Peroxide Formation in Ether," by R. Van Winkle and W. G. Christiansen.

Details of quantitative methods for determining active (peroxide) oxygen and molecular (dissolved) oxygen in ether are given and results compared with U. S. P. peroxide test.

EDITORIAL NOTES

Editor: E. G. EBERLE, 10 West Chase Street, Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, H. A. B. DUNNING, H. C. CHRISTENSEN, C. E. CASPARI, J. H. BEAL, W. BRUCE PHILIP, T. J. BRADLEY. *Ex-Officio Members:* D. F. JONES, *President;* A. L. I. WINNE, W. B. GOODYEAR, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* R. L. SWAIN, *Chairman of the House of Delegates.*

Collaborators: The Members of the Council; E. FULLERTON COOK, *Chairman,* U. S. P. Revision Committee; E. N. GATHERCOAL, *Chairman,* N. F. Revision Committee; Chairmen of the Sections, A. PH. A.; H. A. LANGENHAN, GLENN L. JENKINS, H. C. NEWTON, DENNY BRANN, GEORGE D. BEAL; A. G. DUMEZ, *President,* A. A. C. P.; CHARLES B. JORDAN, *Chairman,* Executive Committee, A. A. C. P.; JOHN A. J. FUNK, *President,* N. A. B. P.; HENRY C. CHRISTENSEN, *Secretary,* N. A. B. P.

NEW AND NONOFFICIAL REMEDIES.

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, *Secretary.*

ISAROL-CIBA.—Sulphonated Bitumen, N. F.—A preparation obtained by dry distillation of bituminous shale. The distillate is sulphonated with sulphuric acid and subsequently neutralized with ammonium carbonate. The product complies with the standards for sulphonated bitumen, N. F.

Actions and Uses.—See Sulphoichthyolate Preparations and Substitutes, New and Nonofficial Remedies, 1929, p. 398.

Manufactured by the Society of Chemical Industry in Basle, Switzerland (Ciba Company, Inc., New York). No U. S. patent. U. S. trademark, 97007.

Isarol-Ciba is a reddish brown to brownish black syrupy liquid with a strong characteristic empyreumatic odor. It is soluble in water and in glycerin, and is miscible with fixed oils and fats. It is partly soluble in alcohol or ether, and entirely soluble in a mixture of equal volumes of these solvents. An aqueous solution (1 in 10) may be faintly acid or faintly alkaline to litmus paper. The addition of hydrochloric acid to this solution precipitates a dark resinous mass which is soluble in ether.

Incinerate a weighed portion of isarol-Ciba: the ash does not exceed 0.5 per cent. Dry a weighed portion on a water bath to constant weight: the loss is not more than 50 per cent.

Accurately weigh about 5 Gm. of isarol-Ciba, dissolve in 100 cc. of water, transfer to a distillation flask, add an excess of sodium hydroxide solution and distil slowly; collect the distillate (about 50 cc.) in 15 cc. of normal sulphuric acid; when the distillation is completed, titrate the excess of sulphuric acid with tenth-normal sodium hydroxide, using methyl orange as indicator: the amount of ammonia found is not less than 2.5 per cent. Accurately weigh about 1 Gm. of isarol-Ciba; transfer to a 100-cc. beaker and add 25 cc. of alcohol; stir thoroughly, filter, and wash the filter with a mixture of equal parts of ether and alcohol until the washings are clear and colorless; dry the residue on the filter at 100 C., cool, and wash the filter with 200 cc. of warm water slightly acidulated with hydrochloric acid; determine the sulphate in the solution by precipitation with barium chloride solution, and after washing, drying, igniting and weighing, calculate the results to ammonium sulphate: the amount found is not more than 8 per cent. Dry about 1 Gm. of isarol-Ciba on a watch glass to constant weight at 105 C.; pulverize the dried material and transfer about 0.5 Gm., accurately weighed, to a nickel crucible; add about 9 Gm. of sulphur-free sodium peroxide, and mix thoroughly; place the crucible carefully in a beaker containing cold distilled water, which should reach about half-way to the top; ignite the dry mixture in the crucible by thrusting a red hot iron wire through a hole in the cover of the crucible; after complete combustion has taken place, tip the crucible and allow the fused mass to dissolve in the distilled water; add hydrochloric acid in slight excess, heat to boiling, and determine the sulphate in the solution by precipitation with barium chloride solution, and after washing, drying, igniting and weighing, calculate the results to sulphur: the total sulphur should not be less than 10 per cent.—*Jour. A. M. A.*, July 6, 1929.

AMPOULES OF PITRESSIN.—An aqueous solution containing the pressor and diuretic-antidiuretic principle of the posterior lobe of the pituitary gland (betahypophamine) containing less than 1 unit of oxytocic activity per cubic centimeter. Five-tenths per cent of chlorbutanol is used as a preservative. It is standardized by the method of Hamilton and Rowe (*J. Lab. & Clin. Med.*, 2, 120 (Nov. 1916)) so that each cubic centimeter contains 20 pressor units (1 unit represents the pressor activity exhibited by 0.5 mg. of standard powdered pituitary-U. S. P.).

Actions and Uses.—Ampoules of pitressin are used for temporary stimulation of blood pressure, for increasing the muscular activity of the bladder and intestinal tract, also for antidiuretic effect in diabetes insipidus.

Experimental evidence has been obtained indicating that the product increases the blood sugar and it has been successfully employed to counteract overdoses of insulin in animals. No clinical studies to determine the value for this purpose have been reported so far. It has been suggested that the product may be of value either in conjunction with or supple-

mentary to the use of epinephrine in the treatment of serum sickness and similar vasomotor disturbances, but no definite evidence on this point is as yet available.

Dosage.—From 0.3 to 1 cc. (5 to 15 minims) intramuscularly, repeated as may be indicated.

Manufactured by Parke, Davis & Co., Detroit. U. S. Patent and trademark applied for.
Ampoules of Pitressin, 1 cc.: Each ampoule contains more than 1 cc.

AMPOULES OF PITOCIN.—An aqueous solution containing the oxytocic principle of the posterior lobe of the pituitary gland (alpha-hypophamine) containing less than 1/2 unit of pressor activity per cubic centimeter. Five-tenths per cent of chlorbutanol is used as a preservative. It is standardized by the U. S. P. method for pituitary, each cubic centimeter containing 10 international units.

Actions and Uses.—Ampoules of pitocin are used to stimulate uterine contractions for obstetric purposes.

The use of the product may be particularly indicated in those cases in which increase of blood pressure or contractile action of the vascular system is undesirable. Its use is contraindicated in contracted pelvis and incomplete dilatation of the cervix.

Dosage.—From 0.3 cc. to 1 cc. (5 to 15 minims) intramuscularly. If used before delivery is completed, small doses are used, repeated if necessary in twenty to thirty minutes.

Manufactured by Parke, Davis & Co., Detroit. U. S. patent and trademark applied for.
Ampoules of Pitocin, 1 cc.: Each ampoule contains more than 1 cc.—*Jour. A. M. A.*, July 13, 1930.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1929, p. 356). Terrell's Laboratories, Fort Worth, Texas.

Rabies Vaccine (Phenolized).—An antirabic vaccine prepared according to the general method of David Semple (phenol killed). The brain and cord of rabbits killed after inoculation with fixed virus rabies are ground in a mortar with distilled water containing 2 per cent of phenol to yield a 6 per cent emulsion of the fixed virus. The emulsion is incubated at 37 C. for forty-eight hours and then diluted with distilled water so that the finished product contains 1.5 per cent of the brain and cord substance and 0.5 per cent phenol. Marketed in packages of fourteen vials each containing 3 cc., and in packages of twenty-one vials each containing 3 cc. The content of a vial is administered daily over a period of from fourteen to twenty-one days according to the severity of the case. Ordinarily one dose is given daily but under certain conditions, such as badly lacerated wounds, bites in children, bites about the face and those who have been bitten some time before treatment is begun, two doses may be given daily for the first few days, then one dose daily until treatment is finished.—*Jour. A. M. A.*, July 27, 1929.

EPHEDRINE-LILLY (See New and Nonofficial Remedies, 1929, p. 166).

The following dosage form has been accepted:

Inhalant Ephedrine (Plain)-Lilly: A solution containing ephedrine-Lilly, 1 Gm.; cottonseed oil, 1 Gm.; perfumed with cinnamic aldehyde, benzaldehyde, and jasmine extract, and tinted with butter yellow; liquid petrolatum to make 100 cc. U. S. patent applied for. No U. S. trademark.

EPHEDRINE HYDROCHLORIDE-LILLY (See New and Nonofficial Remedies, 1929, p. 168).

The following dosage forms have been accepted:

Hypodermic Tablets Ephedrine Hydrochloride-Lilly, 0.016 Gm. (1/4 grain).
Hypodermic Tablets Ephedrine Hydrochloride-Lilly, 0.0325 Gm. (1/2 grain).

EPHEDRINE SULPHATE-LILLY (See New and Nonofficial Remedies, 1929, p. 169).

The following dosage forms have been accepted:

Hypodermic Tablets Ephedrine Sulphate-Lilly, 0.016 Gm. (1/4 grain).
Hypodermic Tablets Ephedrine Sulphate-Lilly, 0.0325 Gm. (1/2 grain).
Syrup No. 110 Ephedrine Sulphate: Containing ephedrine sulphate-Lilly, 0.22 Gm., in 100 cc. (1 grain per fluidounce) and alcohol 12 per cent; it is flavored with vanillin, benzaldehyde and tolu, and tinted with amaranth.
Syrup No. 111 Ephedrine Sulphate: Containing ephedrine sulphate-Lilly, 0.44 Gm., in 100 cc. (2 grains per fluidounce) and alcohol, 12 per cent; it is flavored with vanillin, benzaldehyde and tolu, and tinted with amaranth.

NEOCINCHOPHEN (See New and Nonofficial Remedies, 1929, p. 114).

Neocinchophen-B. P. C.—A brand of neocinchophen-N. N. R.

Manufactured by Benzol Products Company, Newark, N. J., under U. S. patent 1,045,759 (Nov. 26, 1912; expires 1929); by license of The Chemical Foundation, Inc.—*Jour. A. M. A.*, August 17, 1929.

BRITISH PHARMACOPŒIAL REVISION.

"Pharmacopœia Revision seems to be proceeding on lines that are worthy of every commendation, judging from the *C. & D.*, December 7th, page 691. It is particularly gratifying to learn that close and friendly relations have been established between the medical and pharmaceutical authorities, as evidenced by the arrangement for Pharmaceutical Society's Research Laboratory. In addition, we are told of agreement on the form of future Codex monographs. Other arrangements mentioned in the report indicate that the present revision is to be of a most thorough nature, and I shall look forward to the production of a British Pharmacopœia which will set a model to the world. The Codex, too, is apparently to be dealt with in a similarly systematic way. Your report (*C. & D.*, page 689) of the proposed arrangements for revising the book conveys the impression that more enlightened views now prevail with regard to what is necessary

to hammer a somewhat heterogeneous collection of information and formulas into a substantial work of reference which may properly be recognized as a standard."—A correspondent in *Chemist & Druggist.*

AMERICAN HISTORICAL ASSOCIATION.

Evarts B. Greene, professor of history in Columbia University, was chosen *President* of the American Historical Association for 1930, at the forty-fourth annual meeting of the organization. Other officers for the coming year are: *First Vice-President,* Ephraim Douglas Adams, Stanford University; *Second Vice-President,* Carl L. Becker, Cornell University; *Secretary,* Dexter Perkins, University of Rochester. Members of the *Executive Council* are: Payson J. Treat, Stanford University; William L. Clements, Bay City, Mich.; Samuel E. Morison, Harvard University; Winfred T. Root, State University of Iowa; Elizabeth Donnan, Wellesley College; Joseph G. de Roulhac Hamilton, University of North Carolina; Dixon Ryan Fox, Columbia University; Ulrich B. Phillips, Yale University.

Prof. Greene, teacher and author, has long been prominent in the historical sciences. He is former vice-president of the association, and has been active in the movement to raise an endowment of $1,000,000 for historical research. He was born in Kobe, Japan, July 8, 1870. He studied at Northwestern University from 1885 to 1888, and was graduated from Harvard College with a degree of bachelor of arts in 1890. From Harvard he received the A.M. in 1891, and the Ph.D. in 1893.

During 1893–1894 he studied at Berlin University as Harris traveling fellow of Harvard. In 1894 Dr. Greene joined the faculty of the University of Illinois as assistant professor and dean of the College of Literature and Arts. In 1923 Dr. Greene came to Columbia where since 1926, he has been DeWitt Clinton professor of history.

Prof. Greene has been president of the Trustees of the Illinois State Historical Library, member of the Illinois State Centennial Commission, and secretary of the council of the American Historical Association.

He is a corresponding member of the Chicago and Minnesota Historical Societies and the Colonial Society of Massachusetts. He is a fellow of the Royal Historical Society and of the American Academy of Arts and Sciences.

He was chairman of the National Board of Historical Service in 1917–1918, and has been a member of the board of editors of *The American Historical Review* since 1923.

The Historical Section, Army War College, is gathering material for account of activities of Expeditionary Forces, which is soon to be published.

The work of the Section follows two broad lines:

1. Researching, collecting, examining, indexing and collecting data from the official records of the War Department and other official agencies, which, when properly collated, will provide the material for complete and accurate accounts of the participation of the military forces of the United States in the World War; and

2. The evaluation of differences found in the official records with a view to arriving at logical determinations of such historical differences.

The history of pharmacy in this connection would be helpful and interesting.

LIBRARY OF CONGRESS.

H. R. 8372 seeks to appropriate $6,500,000 for construction and equipment of an annex to the Library of Congress. The new building, under the terms of the bill, will contain space for book, newspaper and file stacks, for storage, reference and other rooms; card service and a branch printing office and bindery.

PERSONAL AND NEWS ITEMS.

C. Mahlon Kline, former president of the N. W. D. A., was seriously injured, December 22nd, when an airplane on which he was a passenger, was wrecked in making a landing at Indianapolis. Mr. Kline had his right arm and left leg broken and was badly bruised and shaken up. For a time it was feared that he might have been injured internally, but no indications of this have developed. His mother, Mrs. Mahlon N. Kline, reached the hospital, from Philadelphia, December 23rd. The trip and the shock were such a strain that Mrs. Kline, who is 83 years old, was obliged to go under the care of physicians in the hospital the next day. Both Mr. Kline and his mother are convalescent.

Dr. Harvey W. Wiley will give up his professional activities January 1st. He has been associated with the *Good Housekeeping Magazine* since he left the Government service in 1912. According to the editor of that publication, Dr. Wiley will "remain so long as he lives, a member of our staff"—he is eighty-six years old.

Dr. David I. Macht has been elected a member of the American Society of Naturalists. This is the oldest biological society in America, having been founded in 1883; membership is esteemed as an honor.

At a meeting of the Boston Bacteriological Club held at Walker Memorial Building, Massachusetts Institute of Technology, on December 7th, Dr. George F. Reddish, gave an address on "Methods of Testing Disinfectants and Antiseptics." Dr. Reddish was formerly chief bacteriologist of the F. D. I. Administration of the Bureau of Chemistry in Washington, D. C.

January 21st was set aside by The College of Pharmacy of the City of New York as "Diekman Night," at which time President Paschal M. Everts, of the New York County Pharmaceutical Society, presented to the College a portrait of Dr. Diekman by Boris Luban. Dr. Willis G. Gregory delivered an address in which he spoke of the activities of Dr. Diekman in behalf of pharmacy.

Prof. Curt P. Wimmer presented an illustrated paper before the New York Academy of Medicine on January 8th on "An Historical Review of the Relationship of Medicine to Pharmacy."

The late Alfred Barth, a graduate of the class of 1874, of the Philadelphia College of Pharmacy, has made the College residuary legatee of his estate.

The popular science lectures are being continued every Wednesday. The subjects for February are as follows: "Ventilation and Comfort," Dr. D. W. Horn; "No More Pain," Prof. E. F. Cook; "Iodine, the Element of Doubt," Prof. Ivor Griffith; "The Rat Menace," Prof. Louis Gershenfeld.

At the Pasteur Assembly, held at the Philadelphia College of Pharmacy and Science on January 8th, an address was made by Dr. Joseph McFarland, and a portrait of Pasteur was presented to the College by Dr. William Duffield Robinson.

Ray M. Hudson, formerly Assistant Director of the National Bureau of Standards, has assumed new duties as Secretary of the Massachusetts Division and the New England Council.

President George W. Colborn, Jr., of the Maryland Pharmaceutical Association, entered into the holiday spirit by sending a greeting card to all the members of the ASSOCIATION.

The Perkin medal was presented on January 10th to Dr. Herbert H. Dow, president of the Dow Chemical Co., of Midland, Mich. The presentation was made because of his developments of improvements in the production of chlorine, bromine, magnesium and numerous other chemical materials.

The New York Veteran Druggists' Association at its meeting on January 15th took action to honor Secretary Robert S. Lehman. The Committee having the affair in charge was composed of Robert R. Lampa, Dr. H. V. Arny, Dr. William C. Anderson, Treasurer J. Leon Lascoff, former President Nathaniel Nicolai, Adrian Paradis and Secretary Carl Benkendorfer. Frater Robert S. Lehman is an active and loyal member of the AMERICAN PHARMACEUTICAL ASSOCIATION and of many other organizations and is known and admired by every one as an unusually tireless and cheerful worker in the cause of pharmacy.

The last issue of *The Mask* was named the "A. PH. A. Number," and it measured up to the name. Editor Bliss and the co-editors prepared an excellent issue. Aside from the fraternal items and editorials the number includes several articles of interest and value, among them: "The Professional Side of Pharmacy—Does Pharmacy Pay?" by H. J. Goeckel; "Water and Its Relation to Health," by A. O. Mickelsen; "The Gentle Art of Poisoning," by Walter J. Meek; "Prescriptions—the Backbone of the Drug Store," by Hal E. Duncan.

The Druggists Circular is publishing historical accounts of the Veterans' Associations and sketching the officers and members of the organizations.

Secretary Hayman, of West Virginia Association, issues most interesting letters to the membership; current events are featured by artistic sketches and appropriate lines.

Prof. E. N. Gathercoal has been elected Chairman of the Revision Committee of National Formulary VI. **Prof. Adley B. Nichols** is the new Secretary.

Samuel Y. Harris, president of the Baltimore Retail Druggists' Association and former president of Maryland Pharmaceutical Association, has been elected *Local Secretary* of the AMERICAN PHARMACEUTICAL ASSOCIATION for the meeting in Baltimore during the week of May 5th.

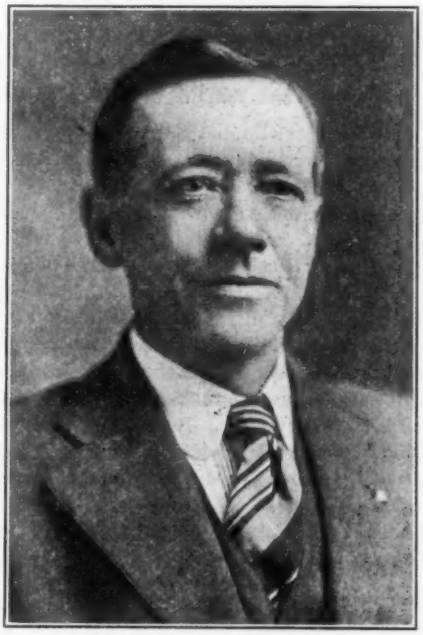
George Young has celebrated the fiftieth anniversary of his connection with the laboratory of Parke, Davis & Co., which anniversary was made the occasion of a presentation.

The New York office of Merck & Co., Inc., will be moved to the Butterick Building at 161 Sixth Ave.

OBITUARY.

FRANK H. CARTER.

Frank Henry Carter, member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1891, died December 15, 1929; he had been in poor health for several years. Mr. Carter was born in Winchester, Va., September 28, 1853; he came to Indianapolis in 1869, as a young man and engaged in the drug business. He first opened a store at 776 Massachusetts Ave. and continued to own and control this store up to the time of his death. At various periods during his business life Mr. Carter owned several other stores.



FRANK H. CARTER.

Mr. Carter was an association worker; he held membership not only in the A. PH. A., but also in the N. A. R. D., and was a member of the Indianapolis Pharmaceutical Association of which he was a former president and served that organization as treasurer for twenty-five years. He was a charter member of the Indianapolis Chamber of Commerce, and a director of one of the state banks in Indianapolis, of which he had been president, and continued as a director until the time of his death. The members of the A. PH. A. will remember Mr. Carter because of his active interest in the annual meetings held in Indianapolis.

The deceased was a member of the Central Ave. M. E. Church and of both the Scottish and York Rite bodies of Masonry. He is survived by his widow, Mrs. Mollie Russe Carter, a sister and four brothers. We are indebted to his niece, Miss Laura Hartman, for the data of this sketch; we express sympathy to members of the family.

Stuart Wyeth, son of the late John Wyeth, died December 30, age sixty-five years. He was an alumnus of Harvard University, to which institution he gave $5,000,000. He also provided liberally for a number of charities. The deceased succeeded his father as president of John Wyeth & Bro., Inc.

Zeb W. Rike, of Farmersville, former president of Texas Pharmaceutical Association, died at his home January 1st. He had been engaged in the retail drug business for quite a number of years and was associated with his father. The deceased was a graduate of Baylor University College of Pharmacy. He is survived by his widow and three sons, to whom sympathy is expressed.

SOCIETIES AND COLLEGES.

CALL OF THE SCIENTIFIC SECTION, A. PH. A.

Members and Friends of the Scientific Section, A. Ph. A.:

The 78th annual convention of the AMERICAN PHARMACEUTICAL ASSOCIATION will be held in Baltimore, Md., May 5 to 10, 1930. This is more than three months earlier than usual, due to the decennial meeting of the Pharmacopœial Convention in Washington, May 13th.

It is, therefore, not too early to be thinking seriously of your contribution to the program of the Scientific Section for the 1930 meeting. The officers of the Section feel sure of your coöperation, but past experience teaches that it is easy for all of us to procrastinate.

Will you please decide as soon as possible upon a title or titles for your contributions to the 1930 program and submit these, together with a concise abstract, to the Secretary by March 1, 1930? The early submission of

titles is necessary to insure proper inclusion in the printed program, and the abstracts will be multigraphed for the meeting by the Secretary if received by March 1st. Papers shold be sent to the Secretary as soon as ready, since valuable time will be lost and confusion will result if sent first to any other officer.

Very truly yours,

L. W. ROWE, *Secretary*, Scientific Section, c/o Parke, Davis & Co., Detroit, Mich.

H. A. LANGENHAN, *Chairman*, Scientific Section, c/o University of Washington College of Pharmacy, Seattle.

ANNOUNCEMENT OF THE SECTION ON EDUCATION AND LEGISLATION.

To the Members and Friends, Section on Education and Legislation, A. Ph. A.:

Your particular interest in pharmaceutical education and legislation pertaining thereto leads us to solicit you and members of your staff for contributions to the 1930 program of the Section on Education and Legislation, and to ask you to direct our attention to papers from other sources that may appropriately be read before the Section.

Only four short months remain until *President* H. A. B. Dunning will sound the gavel calling the 78th annual meeting to order. That we may have the titles of all contributions included in the printed program, it will be necessary for us to have the titles and a brief abstract of each contribution by the middle of March.

An early reply from you will be greatly appreciated.

Very truly,

RUDOLPH H. RAABE, *Secretary*,
316 South Gilbert Street, Ada, Ohio.

SECTION ON HISTORICAL PHARMACY.

To the Members of the American Pharmaceutical Association:

With the annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION coming this year, May 5th to 10th, instead of in the late summer as has been the custom, it is now time for members to give serious thought to their contributions to the program.

The Section on Historical Pharmacy is relying upon your aid in preparing an interesting and instructive program. Its officers will appreciate your coöperation if you will submit the title of your paper and a brief abstract to the secretary at your earliest convenience. If you have not yet decided on the title of your paper, we shall be pleased to have you signify your willingness to contribute to our program now, and submit the title with abstract at a later date.

Please address communications concerning the program of the Section on Historical Pharmacy to the secretary of that Section.

Yours very truly,

(Signed) J. T. LLOYD, *Secretary*,
Section on Historical Pharmacy.
300 W. Court St.,
Cincinnati, Ohio.

A. D. M. A. WILL MEET IN PINEHURST,

The nineteenth annual meeting of the American Drug Manufacturers' Association will be held in the Carolina Hotel, Pinehurst, N. C., April 22nd to 25th. The personnel of the general entertainment committee is as follows: F. J. McDonough, New York Quinine & Chemical Works, Brooklyn, Chairman; A. D. Armstrong, Fritzsche Brothers, Inc., New York; Geroge Simon, Heyden Chemical Corporation, New York; A. A. Wasserscheid, Mallinckrodt Chemical Works, New York; C. C. Neal, Sharp & Dohme, Inc., Baltimore; John D. Gillis, Monsanto Chemical Works, St. Louis; Harold Simpkins, Mallinckrodt Chemical Works, St. Louis; J. J. Kerrigan, Merck & Co., Rahway, N. J.; Ralph Dorland, Dow Chemical Company, Midland, Mich.

OFFICERS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Thomas Hunt Morgan, zoölogist, was elected President of the American Association for the Advancement of Science, at the recent meeting held in Des Moines. The president-elect is a member of the faculty of the California Institute of Technology. The Vice-Presidents are: *Physics*, F. K. Richtmyer; *Chemistry*, James E. Norris; *Anthropology*, Carl E. Guthe; *Psychology*, Edwin G. Boring; *Social and Economic Science*, Leonard P. Ayres; *Engineering*, F. B. Jewett.

It will interest many of our readers to know that Dr. Edwin G. Boring of Harvard University is the son of the late Edwin M. Boring. The latter was a member of the A. PH. A. for nearly sixty years.

The annual meetings of the American Association for the Advancement of Science and the associated organizations bring scientific workers together and give opportunity for the discussions on advances in Science, and they

also encourage popular interest in Science. The AMERICAN PHARMACEUTICAL ASSOCIATION is an affiliated body.

OFFICERS AMERICAN CHEMICAL SOCIETY.

William McPherson, dean of the graduate School of Ohio State University, is president of the American Chemical Society, and Moses Gomberg, professor of chemistry, at the University of Michigan, is the president-elect for 1931. Prof. James F. Norris of the Massachusetts Institute of Technology, and Charles L. Reese of E. I. du Pont de Nemours & Co., Wilmington, Del., were elected directors for 1930–32. The following councilors at large were chosen: Edward Bartow, professor of chemistry at Iowa State University; Prof. S. C. Lind, director of the school of chemistry, University of Minnesota; Hugh S. Taylor, professor of physical chemistry at Princeton University, and David Wesson, consultant, of Montclair, N. J.

NATIONAL DRUG TRADE CONFERENCE.

Several brief statements appeared in the December number of the JOURNAL relative to the meeting of the National Drug Trade Conference on December 12th, and a few more are included herewith relative to work of the Conference.

Chairman L. L. Walton reported on the Survey of Pharmacy and of Pharmaceutical Education which has been undertaken by a Committee representing the A. PH. A., the A. A. C. P. and the N. A. B. P. in conjunction with the American Council of Education. Reports and editorials have heretofore been published dealing with the survey whereby it is hoped to improve pharmacy. Endorsement was given by the Conference to the project.

Relative to the report made by Chairman James H. Beal, for the Committee, to consider the feasibility and advisability of preparing a standard table of potent and toxic drugs the Chairman suggested the following principles as a basis for the work. (1) The table should specify by name all drugs that are considered specimens. (2) Classifications should recognize the concentration in which the potent drug is exhibited. (3) Prescribed mixtures should not be required to be labeled otherwise than as the physician authorizes. (4) "External use" preparations should be protectively labeled when they are potentially dangerous.

THE NATIONAL PHARMACEUTICAL ASSOCIATION OF CUBA.

ITS HISTORY AND PURPOSES.

The "Associacion Farmaceutica Nacional" of Cuba was founded October 10, 1907. It is governed by a president, vice-president, secretary, vice-secretary, treasurer, vice-treasurer, comptroller and a council composed of twelve annually elected members. The Association's objects are to promote the advancement of sciences of the pharmaceutical profession and to supervise the compliance of all pharmaceutical laws; to favor the interests of the Cuban pharmacists, strengthening among them all professional and social ties; to protect and to help the needy associates in case of physical disability and those who, for some reason, may find themselves in poverty and want during their old age. To this end, the Association is about to establish a Committee of Insurance. The Association has acquired a home with attractive rooms for its meetings and social gatherings. At present active members of the Association number about five hundred, and it publishes a monthly journal entitled *Boletin de Farmacia de la Associacion Farmaceutica Nacional.* The secretary of the Association and editor of its Journal, is José Capote Diaz.

OFFICIAL ROSTER FOR 1929–1930.

Officers.—*President*, M. F. Garrido; *Honorary Presidents*, A. J. G. Diaz, G. Fernandez Abreu, M. F. Garrido; *Vice-President*, J. A. Simpson; *Secretary*, J. Capote Diaz; *Vice-Secretary*, F. Daniel Moreno; *Treasurer*, J. E. Puig; *Vice-Treasurer*, J. Marti; *Comptroller*, J. Murillo.

The Council.—*Elected Members*, E. C. Bello, J. Macias, L. Cabrera, S. Herrera, L. R. Baz, M. Guerrero, R. Irigoyen, F. Barroso, C. G. Morales, E. Capote Diaz, E. Trelles, T. C. Padron. *Honorary Members*, J. Mas Guindal, Madrid, Spain; J. Casares, Madrid, Spain; Albert Astruc, Montpellier, France; V. Ferrer Diaz, Habana; J. A. Simpson, Habana; A. Gonzalez Curquejo, Habana. *Life Members*, G. Fernandez Abreu, J. Aluija. *Committee on Insurance, Chairman*, J. A. Simpson; *Secretary*, F. Daniel; *Elected Members*, A. G. Torres, P. Ramirez, A. Mazzuchelli, E. Gonzales, M. F. Garrido, Jr. *Corresponding Members*, J. Astrada, Buenos Aires, A. R.; C. B. del Cano, Madrid, Spain; L. L. Perez, Madrid, Spain; V. M. Ovalles, Caracas, Venezuela.

LEGAL AND LEGISLATIVE.

VALIDITY OF CHAIN STORE TAX IN INDIANA IS DEBATED.

The validity of the chain store tax law enacted at the 1929 session of the Indiana Legislature has been argued before a three-judge Federal court. The plaintiff in the case is the Standard Grocery Company. The rate of tax, it was shown, is as follows: Upon one store, $3.00; upon two stores or more, but not to exceed five stores, $10.00 for each additional store; upon each store in excess of five, but not to exceed ten, $15.00 for each additional store; upon each store in excess of ten, but not to exceed twenty, $20.00 for each additional store; upon each store in excess of twenty, $25.00 for each additional store. The state contends that it has the power to classify chain stores for the purpose of taxation, and that the police power of the state gives it the right to regulate the growth of such stores.

TAX ON CHAIN STORES IS TESTED IN GEORGIA.

Constitutionality of the Georgia tax on chain stores is now before the Fulton Superior Court in an injunction proceeding brought by F. W. Woolworth Co., Great Atlantic & Pacific Tea Co., J. C. Penney Co., S. H. Kress Co., Lane Drug Stores, Inc., King Hardware Co. and the Southern Grocery Stores, Inc.

The present chain store tax law was enacted at the 1929 session of the Georgia legislature. It imposes a tax of $50.00 on each store; five or more stores owned, operated, maintained or controlled by the same person, firm or corporation constitute a chain, under the law.

The petition filed by the stores alleges that the act is discriminatory, arbitrary and not uniform; that it is not a *bona fide* taxation measure, "but merely a legislative subterfuge and attempt to prohibit, restrain and restrict trade by imposing an unequal burden on the petitioners."

THE NEED FOR CARE IN HANDLING POISONS.

In a bulletin issued by the Food, Drug and Insecticide Administration, U. S. Department of Agriculture, attention is called to the handling of poisons and reference is made to a case of poisoning that occurred several years ago by emptying a sack of arsenic into a flour barrel; another case in which rat poison had been accidentally thrown into an open sack of sugar. The bulletin concludes by statements relative to the Federal Caustic Poison Act.

THE RIGHT TO COMPEL PUBLISHERS TO SHOW HOW ADVERTISING IS SOLICITED.

Arguments were recently heard on a question involving the right of the Federal Trade Commission to compel publishers to bring their methods of securing advertising into court.

ALCOHOL-CONTAINING MEDICINE.

The Southern California Retail Druggists' Association has addressed the Drug Trade of California in the interest of Pharmacy. In the circular letter attention is called that care should be exercised in the selling of preparations which may be used for beverage purposes. Attention is also called that no window display should be used or any literature or signs indicating the value of preparations on account of alcoholic contents.

ADDITIONAL VETERANS' HOSPITALS.

H. R. 234 by Representative Johnson of Aberdeen, S. Dakota, Chairman of the Committee on World War Veterans' Legislation, has become law. It authorizes $15,950,000 for construction of additional hospitals for veterans.

INCREASED BUDGET FOR F. D. I. ADMINISTRATION.

For the administration of the Food and Drugs Act President Hoover requested an appropriation of $1,596,000, after carrying out the provisions of the Food and Drugs Act. The suggestion has been made to change the name of Food, Drug and Insecticide Administration to Food and Drug Administration.

THOMAS A. EDISON FAVORS CAPPER-KELLY BILL.

Thomas A. Edison has written Congressman Kelly as follows:

"Fair competition between manufacturers is a good thing and will inevitably result in fair prices to the public. The competition developed by the price-cutting methods of certain retailers is harmful to the manufacturer, destructive to the legitimate dealer and of no lasting benefit to the small portion of the public temporarily affected by it. I heartily approve of the Capper-Kelly Bill."

CHAPLAIN ARMY CORPS.

Under the present provisions army chaplains are appointed in the initial grade of First Lieutenant and after successful periods of service are promoted to the grades of Captain, Major and Lieutenant Colonel. They have an actual rank (without command), pay and allowances of the grade held and the same retirement features common to all officers of the service.

BOOK NOTICES AND REVIEWS.

Die aetherischen Oele, VON E. GILDEMEISTER UND FR. HOFFMANN. *Dritte Auflage*, VON E. GILDEMEISTER. Bearbeitet im Auftrage der Schimmel & Co. Aktiengesellschaft, Miltitz bei Leipzig. Zweiter Band, pp. XXIII, 959, mit neun Karten und zahlreichen schwarzen und bunten Abbildungen, Verlag der Schimmel & Co. Aktiengesellschaft, Miltitz bei Leipzig (Fuer den Buchhandel: L. Staackmann, Leipzig) 1929.

Upon opening the second volume of the third edition, the reader is in doubt what to admire more, the book as a scientific treatise or the tome as a product of the art of bookmaking. Always of a high order, the present volume is enhanced by a number of colored illustrations already familiar to the readers of Schimmel & Co's. "Bericht." These plates, the originals of which were donated to the Duetsches Museum in Muenchen, bear the following legends:

"Edeltannenzapfendestillation in der Schweiz" (opposite page 176).

"Destillation von Palmarosaoel in Vorderindien" (opposite page 296.)

"Destillation von Lemongrasoel in Vorderindien" (opposite page 304).

"Irisanpflanzungen in Nord-Italien" (opposite page 418).

"Destillation von Sternanisoel in Tongkin" (opposite page 566).

"Canangablueten-Destillation auf Java" (opposite page 582).

"Campherbaum" (opposite page 652).

In addition there are fifty-six black and white illustrations, also nine maps (including one chart) two of which are printed in colors.

However, the general excellence of the workmanship of the bookmaker has not been accomplished at the expense of the real contents, the text. The 674 pages of the corresponding volume of the previous edition have been increased to 959 pages. The number of volatile oil monographs has been increased from 416 to 584.

If the 178 additional monographs in a measure represent the growth of the volatile oil literature represented in the second volume, they do not by any means represent all of the progress. This may be studied by comparing some of the monographs. Thus, the monograph on camphor oil has been increased from approximately thirty-two to thirty-eight pages. What is more, however, the number of known constituents has been increased from twenty-four to thirty-six. Some of these are caryophyllene, sesquicamphene, sesquicamphenol, sesquiterpene alcohol, α- and β-camphorene (two diterpenes), ethyl guaiacol, n-capronic acid, caprylic acid, d, l-citronellic acid, lauric acid and piperonylic acid. What a contrast this represents when compared with our knowledge of the volatile constituents of the camphor tree little more than a generation ago. It, like many other plant products, constitutes a veritable gold mine for the chemist who has sufficient material and is willing to devote the time to a detailed study of any one of these volatile oils.

Valuable as are these contributions to our knowledge of the volatile oils as a commercially important class of plant products, the greater significance of our increased knowledge lies in the new vistas opened up in the study of the life processes of plants. When one considers how little we know even now, the so-called "pure" scientist must be grateful to those who are making commercially available these products in sufficiently large quantities so as to make possible such detailed studies.

The appearance of the second volume within approximately a year after that of the first of the third edition speaks well for revisor and publisher. It makes us hopeful of being able to welcome volume three before the year 1930 has slipped by.—E. K.

Betäubungsmittel und Rauschgifte. "Stupefacients and Intoxicants, Their Sources, Properties and Dangers." By PROFESSOR HERMANN THOMS. Urban & Schwarzenberg, Berlin and Vienna. Price 7.20 marks.

In order to give a just and adequate review of any book, the critic must take into consideration not only the contents of the literary

production itself but also the *author*, on the one hand, and the *purpose* of the work, on the other. The author of the well-printed book of 192 pages before us is Professor Hermann Thoms, a distinguished authority in pharmacy and, more particularly, in pharmaceutical chemistry. This important earmark confronting us on the very title-page of the work is, unfortunately, perhaps one of the most deplorable features of the book for, to the unbiased reviewer, it is at once evident that the present work does not reflect glory on the writer and, indeed, is altogether below the dignity of one occupying such an eminent position in his chosen field. The reason undoubtedly is the incontrovertible fact that the author has ventured into a field of science for which he is not particularly qualified. Much of the reading matter deals not with pharmacy or pharmaceutical chemistry but with pharmacology. Of course, this comment is greatly extenuated by another feature to be considered by every critique, namely, the object or purpose of the writing. This can best be expressed in the author's own words from the brief preface which read as follows: "The writer has endeavored to set forth in fourteen lectures, given before students of all faculties of the Friedrich Wilhelm University in Berlin, during the winter semester of 1928 and 1929, the question of stupefacients and intoxicants from the botanical, chemical, physiological, hygienic and economic points of view, subjects which are of interest to the general public. At the expressed desire, on many sides, to put these lectures in book form, the present work has been published."

The title, "Stupefacients and Intoxicants," is rather an unfortunate one because some of the subjects treated here are not all classified under these headings. Thus, for instance, various sedatives and hypnotics can hardly be classed pharmacologically under the title of "stupefacients," or even "narcotics." Again, the lumping together in one chapter, entitled, "Stimulants and Condiments," of various spices, such as ginger, cinnamon, mustard, saffron, nutmeg, pepper, etc., volatile oils, such as anise, cardamom, coriander, thyme, etc., with caffeine-containing beverages such as coffee, cocoa, maté, and cola, is not a very logical one.

The book opens with a brief introductory chapter of an historical nature which is very readable. Indeed, the historical portions are perhaps the most valuable and certainly the most interesting features of the book. Then come two chapters, comprising from 12 to 30 pages, devoted to the discussion of alcohol. The first chapter deals with its sources, chemical and physiological properties; the second is devoted to the consideration of alcoholic beverages and the measures for the control of alcoholism. While the purely pharmaceutical portions of this discussion on alcohol are of considerable interest, the exposition of its pharmacological and physiological effects is, to say the least, a very superficial one. Any student can obtain a greater fund of information on even a cursory reading of an ordinary textbook on pharmacology. Chapter III, dealing with the liquor question, is an interesting contribution to the problem of prohibition from the German point of view and here one finds references to the United States' prohibition law and the activities of the Women's Temperance League and similar organizations. Some interesting statistical data are also furnished. In Chapter IV, the author discusses caffeine-containing beverages, together with condiments and spices, and one wonders whether the German *Rauschgift*, best translated as an "intoxicant," can be justly applied to such drugs. Chapters V and VI, covering 28 pages, are devoted to the discussion of tobacco. This is perhaps the most valuable portion of the book. Here are some extremely interesting historical data on the subject well worth reading. These are followed by a discussion of the chemistry of nicotine, the chemical composition of tobacco smoke, and the pharmacological effects of it. The author expresses a very interesting opinion in regard to the deleterious effects of smoking in that he thinks such effects are not produced by the nicotine alone but that the nicotine effect is potentiated by the synergistic action of some of the other chemical products in tobacco smoke. The sixth chapter discusses tobacco from the hygienic and sociological points of view. The treatment in this case is excellent but, unfortunately, the author has neglected the pharmacological literature on the subject. Chapters VII and VIII are entitled "Anesthetics" and discuss the inhalation of anesthetics such as nitrous oxide, ether, chloroform, etc., on the one hand, and local anesthetics, on the other. Here again, a pharmacologist is somewhat puzzled about the propriety of including the volatile anesthetics such as laughing gas, ether and chloroform under the head of *Rauschgifte*, or "intoxicants." While

these substances, in common with the alcohols, act on the central nervous system and are, broadly speaking, "narcotic," using the term in Lillie's sense, we certainly cannot logically include them in a series of popular lectures on narcotics and intoxicants. Under local anesthetics, cocaine is considered at length and the pharmaceutical and historical treatment of it is excellent. The pharmacological treatment, however, is very superficial. Chapter IX is devoted to synthetic local anesthetics which certainly do not fall within the scope of the book as expressed in its title. This chapter is followed by another on sedatives and hypnotics, giving a list of old and newer sleep-producing drugs, chloral, luminal, proponal, dial, urethane, sulphonal and trional. The rest of the book, with the exception of a chapter which mixes illogically a consideration of various drugs, hashish, hyoscyamine, atropine and scopolamine, is devoted, for the most part, to the true narcotics, opium and its derivatives. The author gives an interesting historical sketch on opium, discusses briefly the chemistry of its principal alkaloids and, very inadequately, considering the importance of the subject, their pharmacodynamics. A greater proportion of space is devoted to the consideration of morphinism and heroinism. Some excerpts are appended from the narcotic laws on the subject and the concluding sentence of the book is, "*Mens sana in corpore sano.*" The lack of sufficient literary references is deplorable but is to be explained by the fact that these were originally a series of popular lectures.

A perusal of this little book leads us to the following conclusions: It is of the greatest interest in regard to its historical contents. It is useful to the pharmacist and general public from the point of view of statistics. It is inadequate and not up-to-date in respect to its pharmacological content.—D. I. M.

Chemical Dictionary. Based on recent chemical literature, containing the words generally used in chemistry, and many of the terms employed in the related sciences of physics, astrophysics, mineralogy, pharmacy and biology, with their pronunciations. By INGO W. D. HACKH, professor of Chemistry, College of Physicians and Surgeons. Author of "Chemical Reactions and Their Equations." Publishers, P. Blakiston's Son & Co., Inc., 1012 Walnut St. Philadelphia. Large octavo, 790 pages, 232 illustrations and over 100 tables. Fabricoid, $10.00.

Dr. Hackh has contributed a number of articles to the JOURNAL, most of them dealing with structure-symbols of organic compounds; we refer to the JOURNAL for 1920, 1921 and 1924.

The author has been successful in the preparation of a useful work; he has defined not only words used in chemistry but has included terms of related sciences and a helpful key to the pronunciation of words of foreign origin, as well as of words in the pronunciation of which there is great variance. There are brief biographic sketches and reproductions of portraits of many prominent scientists. In a comprehensive work, such as this, errors are bound to creep in and the author's viewpoints naturally differ in some instances from those who make use of the *Dictionary.* Well and favorably known scientists have aided the author and he gives them due credit and also credits standard works which have been consulted in the preparation of the Dictionary.

The great progress of chemistry in recent years and its specialization has emphasized the need for a dictionary which records the science in terms of modern concepts. Theories, laws and rules of chemistry are given; elements compounds, drugs, minerals, vegetable and animal products are defined and described.

The book contains a number of original charts and diagrams of practical value. The author, who devoted a number of years of thoughtful study has, as stated, been eminently successful in completing a helpful publication. We commend the dictionary for the library of the pharmacist as well as the chemist; there is no question in the writer's mind about that; however, the effort to make the work a comprehensive reference brings it to the attention of those who look for other information than that which is strictly of a chemical nature. The following notes are offered in a helpful spirit. The U. S. Pharmacopœia and National Formulary are not rigidly followed in terms and definitions; the source of an official drug is not always correctly given and there is some lack of uniformity in capitalization. It is impossible to sketch all chemists of note, but Caventou should not have been omitted. Scheele is named as noted chemist; he was an apothecary during all the years of his active life; quite a number of the chemists sketched were pharmacists, but in glancing over the pages we failed to note the mention of pharmacists. Tincture is defined as "a medicated liquid made by extraction of a drug

which is generally weaker in strength than a fluidextract." It would have been an easy matter to have used the definition of the Pharmacopœia or National Formulary. Doubtless, pharmacists will consult the *Dictionary*, therefore, the definitions of drugs and preparations of them should, as they do in most instances, conform with the standards. The latter references may be of secondary importance in a *chemical dictionary*, but the writer knows the author's desire is to have his work authentic, and the references are made for that purpose. Authors and historians should bear in mind that pharmacists, because of their training and education, may have done outstanding work in some of the sciences underlying pharmacy, but they retain their title as pharmacists and should be so accredited even though in the course of their activities they gained distinction in chemistry, biology, botany, pharmacognosy or other science.

As before stated, the *Dictionary* deserves commendation and will be found a very useful addition to the library; there is much information contained which obviates the necessity of search in a number of volumes. The publishers have prepared an informative circular which may be obtained by addressing them.

The Medical Museum, Based on a New System of Visual Teaching, by S. H. DAUKES, Director, The Wellcome Museum of Medical Science, size 10″ x 7″, pages 172. (The Wellcome Foundation Ltd., Endsleigh Court, 33, Gordon Street, London, W.C.1, England.)

This book is not merely a theoretical contribution to the improvement of museums in general and medical museums in particular but a description of practical achievement based upon theory and vision.

The author is precise, clear, and has obviously devoted much study, skill and care to a subject on which this book stamps him as an expert. Having in the first chapter discussed the functions of a medical museum and made a plea for reform and for a wider outlook, Dr. Daukes proceeds in subsequent chapters to describe and discuss the details of the new system of visual teaching on which the ideal medical museum is based.

This is followed by appendices dealing with the application and development of the system, with types of buildings, walls, screens, cases, labels, illustrations and technical details of preserving and mounting specimens. In conclusion there is a very valuable and complete bibliography of technical museum publications and 45 whole-page illustrations of screens, sections and specimens which are most helpful as providing practical evidence of the soundness and practicability of this new system of visual teaching.

The letterpress is in large, easily-read type, and the typography gives an air of distinction to the publication which is further enhanced by the technical perfection of the photographs of difficult subjects and the high quality of the halftone reproductions.

Everyone interested in museums, whether in regard to construction, development, control or use, should read and study this book. Having done so there will be a natural desire to see its methods developed in actual practice, which, fortunately, is possible for all those who can visit The Wellcome Museum of Medical Science, 33 Gordon Street, London, England, of which Dr. Daukes is Director. Dr. H. S. Wellcome has been a member of the AMERICAN PHARMACEUTICAL ASSOCIATION for more than 50 years.

Diabetic Manual for Patients, a Non-official Guide for the Person Suffering with Diabetes, by DR. HENRY J. JOHN, Director of the Diabetic Department of Laboratories of the Cleveland Clinic. Publishers, C. V. Mosby Co., St. Louis, Mo. Price $2.00.

LEGAL NARCOTIC PRESCRIPTIONS.

Narcotic regulations require that a narcotic prescription must be dated as of and signed on the day when issued and must bear the full name and address of the patient and the name, address and registry number of the practitioner. The prescription should be written with ink or indelible pencil or typewritten. If typewritten, it should be signed by the practitioner. The foregoing applies to all prescriptions for narcotic drugs and preparations not exempt under Section 6 of the Harrison Narcotic Act. A prescription for taxable narcotic drugs cannot legally be refilled. The partial fillings of a narcotic prescription, as a general rule, is unlawful. Orders from physicians over the telephone for narcotic drugs cannot be filled by retail druggists except in emergencies and even then the employee of the druggist must be supplied with a properly prepared prescription before delivery is made to the patient.